ANTHROPOMETRY OF WOMEN
OF THE U.S. ARMY-1977

Report No. 4 - Correlation Coefficients

by

Ilse Tebbetts

Thomas Churchill

and

John T. McConville

Anthropology Research Project

Yellow Springs, Ohio

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Correlation coefficients for the 161 variables measured in the 1976-77 anthropometric survey of U.S. Army women are given in this document, the fourth in a series of five reports describing the results of that study. Five sets of measurements were taken in the original survey; these included a core series plus subsets of traditional, workspace, head-face and static strength measurements. Correlations are given for all core measurements,

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20. ABSTRACT (continued)

for each of the subsets, and for combinations of each subset (except the head-face group) with the core dimensions.

Intended as a self-sufficient guide to designers of military clothing, equipment and workspaces, this report contains summary statistics for the five sets of measurements and height-weight regression equations to aid users in estimating given dimensions for groups or individuals for whom directly measured data do not exist. Also included here are instructions for creating regression equations from variables other than height and weight. Visual indexes for all the variables are presented for the benefit of users seeking to identify particular dimensions but who are not familiar with anthropometric terminology.

PREFACE

The correlations and regression equations reported here are based on anthropometric data obtained in a survey of U.S. Army women conducted in 1976-77 under the supervision of Edmund Churchill, Dr. John T. McConville and Dr. Lloyd Laubach. The data in this report were computed and assembled by the Anthropology Research Project in Yellow Springs, Ohio, under contract No. DAAK60-79-C-0097 with the U.S. Army Natick Research and Development Command, Natick, Massachusetts. Dr. McConville served as senior investigator. Mr. Robert M. White, as contract monitor, offered continuous useful guidance throughout the preparation of this report.

Ms. Kay Downing executed the original drawings for the illustrations used in the Visual Index. Graphic enhancement and layouts of the Index were done by Ron Robinette with his customary meticulous attention to fine detail.

Ms. Jane Reese contributed her considerable typing, layout and proof-reading skills in preparing the manuscript for publication.

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ANTHROPOMETRY OF WOMEN OF THE U. S. ARMY--1977
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INTRODUCTION

This is the fourth in a series of reports describing and analyzing the data from a large-scale anthropometric survey of Army women conducted in 1976-77. Appearing here, specifically for use by designers of Army clothing and personal-protective equipment, are, (1) the correlation coefficients which describe the relationships between dimensions, and (2) regression equations which can be used to predict dimensions for similar unmeasured populations.

The first volume of the series (Laubach et al., 1977)[1] outlines the survey methodology and describes the measurements. Results of the survey--summary statistics, percentiles, and frequency tables--are presented in the second report (Churchill et al., 1977),[2] while bivariate frequency tables for selected pairs of dimensions appear in the third volume (Churchill et al., 1977).[3] The fifth in the series of reports (McConville et al., 1977)[4] deals with the results of a companion survey of 287 Army men in which comparable anthropometric data were obtained by the same measuring team directly upon completion of the women's survey.

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[1]Laubach, L.L., J.T. McConville, E. Churchill and R.M. White. Anthropometry of women of the U.S. Army-1977; Report No. 1 - Methodology and survey plan. Technical Report NATICK/TR-77/021, U.S. Army Natick Research and Development Command, Natick, Mass., 1977. (AD A043 715)

[2]Churchill, E., T. Churchill, J.T. McConville and R.M. White. Anthropometry of women of the U.S. Army-1977; Report No. 2 - The basic univariate statistics. Technical Report NATICK/TR-77/024, U.S. Army Natick Research and Development Command, Natick, Mass., 1977. (AD A044 806)

[3]Churchill, T., E. Churchill, J.T. McConville and R.M. White. Anthropometry of women of the U.S. Army-1977; Report No. 3 - Bivariate frequency tables. Technical Report NATICK/TR-77/028, U.S. Army Natick Research and Development Command, Natick, Mass., 1977. (AD A046 692)

[4]McConville, J.T., E. Churchill, T. Churchill and R.M. White. Anthropometry of women of the U.S. Army-1977; Report No. 5 - Comparative data for U.S. Army men. Technical Report NATICK/TR-77/029, U.S. Army Natick Research and Development Command, Natick, Mass., 1977. (AD A048 591)

The women's sample totaled 1,330 subjects all of whom were measured
for 69 basic dimensions which, with "age", constitute the "core" meas-
urements. In addition, four subseries of measurements were created
as follows:

28 "traditional" body measurements: 255 subjects

14 workspace measurements: 300 subjects

31 head and face measurements: 216 subjects

9 static strength measurements (average and peak values were
   recorded for each of two trials): 349 subjects

Subjects on whom the core measurements were taken were then randomly
assigned to be measured in one of the four subseries.

In brief, about three quarters of the subjects were enlisted women
and one quarter officers. Three quarters were Whites, close to one
quarter Blacks and about 2% were Orientals. Mean age of the sample
was slightly over 23 years. The women averaged 60 kilograms (132
pounds) in weight and had a mean height of 163 centimeters (64 inches).

The correlations presented in Chapter I are divided into five sets
of data, one representing core measurements of the entire sample, and
the other four representing the subgroups. Except for the head-face
series, where they are not relevant, all the core dimensions are cor-
related with the dimensions in each subgroup; subgroup dimensions are
also, of course, correlated among themselves.

Each group of correlations is preceded by a visual index which
consists of a series of line drawings illustrating the measured
dimensions. The reader need not know the exact anthropometric name
used for a particular dimension of interest but can locate it by look-
ing through the visual index. Each dimension illustrated in the index
is keyed to the anthropometric name of the dimension, its designated
number and a description of how it was measured. Numbers assigned to
the variables appear throughout the report; accompanying letters
identify the subgroup category from which the measurement was taken
(i.e. 3C indicates a core measurement; 5W identifies the variable as
a workspace dimension).

Chapter II contains three sets of regression equations based on
the height and weight of the total Army women's sample and two of the
four subgroups, the traditional and the workspace measurements. With
these, designers will be able to estimate reliably numerous dimensions
for virtually any group of Army women whose height and weight can be
ascertained. Alternatively, a designer may wish to use predictor
values other than height and weight for specific design problems. To
this end Chapter II contains an explanation of how to construct valid

regression equations using any known variable or variables from the summary statistics and correlation data provided in Chapter I.

Some of the data which are provided in this volume--notably summary statistics, percentiles and measurement descriptions--have appeared in previous volumes. They are repeated here so as to make this a complete and self-sufficient manual which can be used without reference to the other volumes.

Chapter I

CORRELATION COEFFICIENTS

The extent to which sizing systems produce well-fitting garments for a large population which, in this case, spans 90 pounds of weight and twelve inches in stature, depends on the ability of the designer to analyze, select and manipulate body size data which will successfully relate to or "control" the important dimensions of a given garment. The coefficients of correlation contribute to this process.

Most commonly employed of the statistics which express the important interrelationships of body parts is the correlation coefficient, a value which reflects the extent to which the increase or decrease of one dimension coincides with a similar change in another dimension or, put another way, the reliability with which one variable can be predicted from another. Height measurements, for example, tend to correlate well with each other, which is to say that as stature increases so does shoulder height, waist height, buttock height or calf height. A perfect agreement (never achieved among body size measurements) is expressed as 1.0; the correlation coefficient of stature and shoulder height, as can be seen on Table 2, is 0.968. Near the other end of the scale are correlation coefficients for such combinations as waist circumference and stature (0.208 for the Army women's sample) which reflects the fact that there is little predictable relationship between a woman's height and her waist size.

Negative correlations result when one variable increases as the other decreases. High negative correlations rarely if ever occur between anthropometric measurements but, as can be seen by examining the correlation tables in this chapter, very low negative correlations occasionally occur. These do not have any special significance; like very low positive correlations, they simply denote the absence of any meaningful relationship between the given variables.

Blank spaces which occur at regular diagonal intervals on the following correlation tables indicate correlations of a variable with itself. This value, which is always 1.0, has been omitted throughout.

As a general rule, there is a high correlation between stature and other height measurements for all populations. Weight correlates well with circumferential and breadth measurements and there is a moderate degree of relationship between stature and weight which, in most population samples, ranges around 0.5.

It is customary in sizing garments to be worn on the torso to select one or two key dimensions on which to base the sizing system. In the case of slacks, these might be stature and hip circumference since a study of the correlation coefficients reveals that, between them, these

two dimensions relate well to virtually all other dimensions of importance. Stature has a controlling influence on such variables as waist and crotch height, while hip circumference correlates well with waist, upper thigh and calf circumferences. Thus a garment sized 34 long could reasonably be expected to fit a tall, slim woman not only at hips and inseam but also at the waist and around the legs.

The correlation coefficient derives from the related concept of the regression line or regression formula by which one can estimate the value of one variable from that of a second variable. Data required to derive regression equations are the correlation coefficients, means and standard deviations. Instructions for constructing regression equations from the Army women's data are given in Chapter II. Presented in this chapter are the summary statistics (Tables 1, 3, 5, 7 and 9) and the correlation coefficients (Tables 2, 4, 6, 8 and 10) required for creation of the regression equations.

Five sets of correlation coefficients appear here. In the first group are the 70 core measurements (69 body size variables plus age). The remaining four sets represent the subgroup measurements. Core measurements are correlated with each subgroup measurement in all but the head/face series.

Dimensions of the head and face have so little relationship to other body measurements that with the exception of age, weight, stature, head circumference, head breadth, and head length, the core measurements are not correlated with those in the head/face series. As can be seen from a study of Table 8, head and face measurements have a notoriously poor relationship even with each other, an anthropometric phenomenon which lies at the root of difficulties encountered in the design and sizing of protective head gear and respirators.

The nine strength measurements were each made twice and the data recorded for each strength test included the subject's peak effort over a three-second interval and the average of her pull. Since each strength measurement was duplicated, four data points (average force 1 and 2 and peak force 1 and 2) were originally reported. Since the duplicated measurements closely resembled each other, it seemed superfluous to include them all in the correlation statistics. For correlation purposes, then, we selected only the higher of the peak measurements and the higher of the average measurements for each subject.

THE VISUAL INDEX
CORE MEASUREMENTS

2C	8C		5C

| 3C | 7C | 9C | 10C | 6C | 4C |

11C

18C
14C
17C

13C
15C
12C
16C
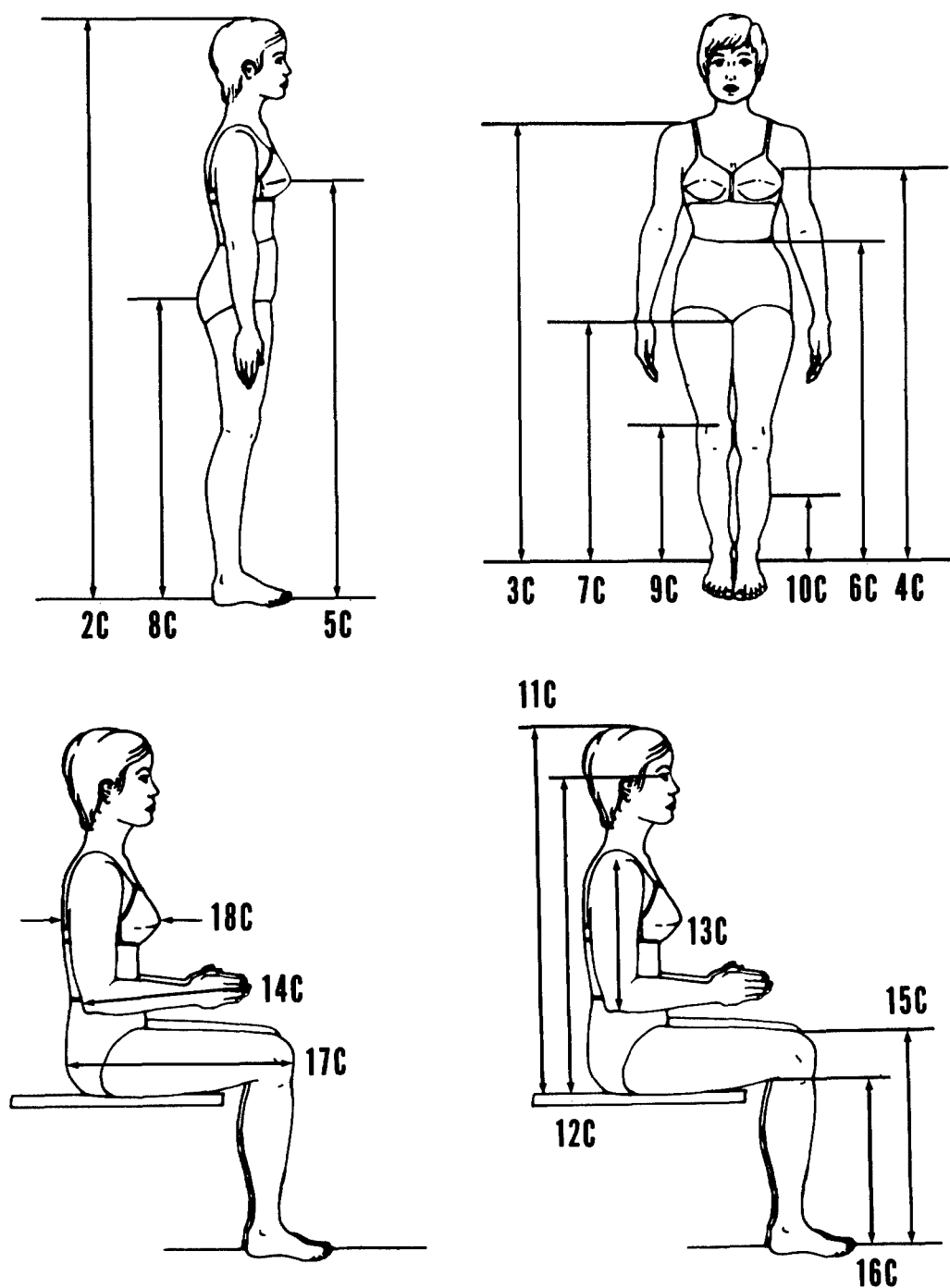
Figure 1. The visual index: core measurements.

1C WEIGHT: weight of subject wearing panties and bra (not pictured).

2C STATURE: vertical distance from floor to top of the head.

3C SHOULDER HEIGHT: vertical distance from floor to acromion, the
lateral edge of the acromial process of the shoulder.

4C AXILLA HEIGHT: vertical distance from floor to armpit.

5C BUSTPOINT HEIGHT: vertical distance from floor to tip of the bra.

6C WAIST HEIGHT: vertical distance from floor to natural waist level.

7C CROTCH HEIGHT: vertical distance from floor to midpoint of crotch.

8C BUTTOCK HEIGHT: vertical distance from floor to the point of
maximum protrusion of the buttock.

9C KNEECAP HEIGHT: vertical distance from floor to top of the
kneecap (patella).

10C CALF HEIGHT: vertical distance from floor to the level of the
maximum circumference of the calf.

11C SITTING HEIGHT: vertical distance from sitting surface to top of
the head.

12C EYE HEIGHT, SITTING: vertical distance from sitting surface to
the outer corner of the eye.

13C SHOULDER-ELBOW LENGTH: vertical distance from acromion, the lateral
edge of the acromial process of the shoulder, to the underside of
the elbow, measured with the upper arms relaxed and the forearms
and hands extended forward and horizontally.

14C ELBOW-FINGERTIP LENGTH: distance from the tip of the right elbow to
the tip of the middle finger, measured with the upper arm hanging
relaxed, the forearm and hand extended forward and horizontally.

15C KNEE HEIGHT, SITTING: vertical distance from the footrest surface
to a point on the thigh 5 cm proximal to the anterior surface of
the patella.

16C POPLITEAL HEIGHT: vertical distance from the footrest surface to
the lateral underside of the thigh where the tendon of the biceps
femoris joins the lower leg.

17C BUTTOCK-KNEE LENGTH: horizontal distance from the most posterior
protrusion of the buttock to the most anterior point of the kneecap.

18C BUST DEPTH: horizontal distance from the tip of the bra to the
back of the torso.

THE VISUAL INDEX
CORE MEASUREMENTS (CONT.)
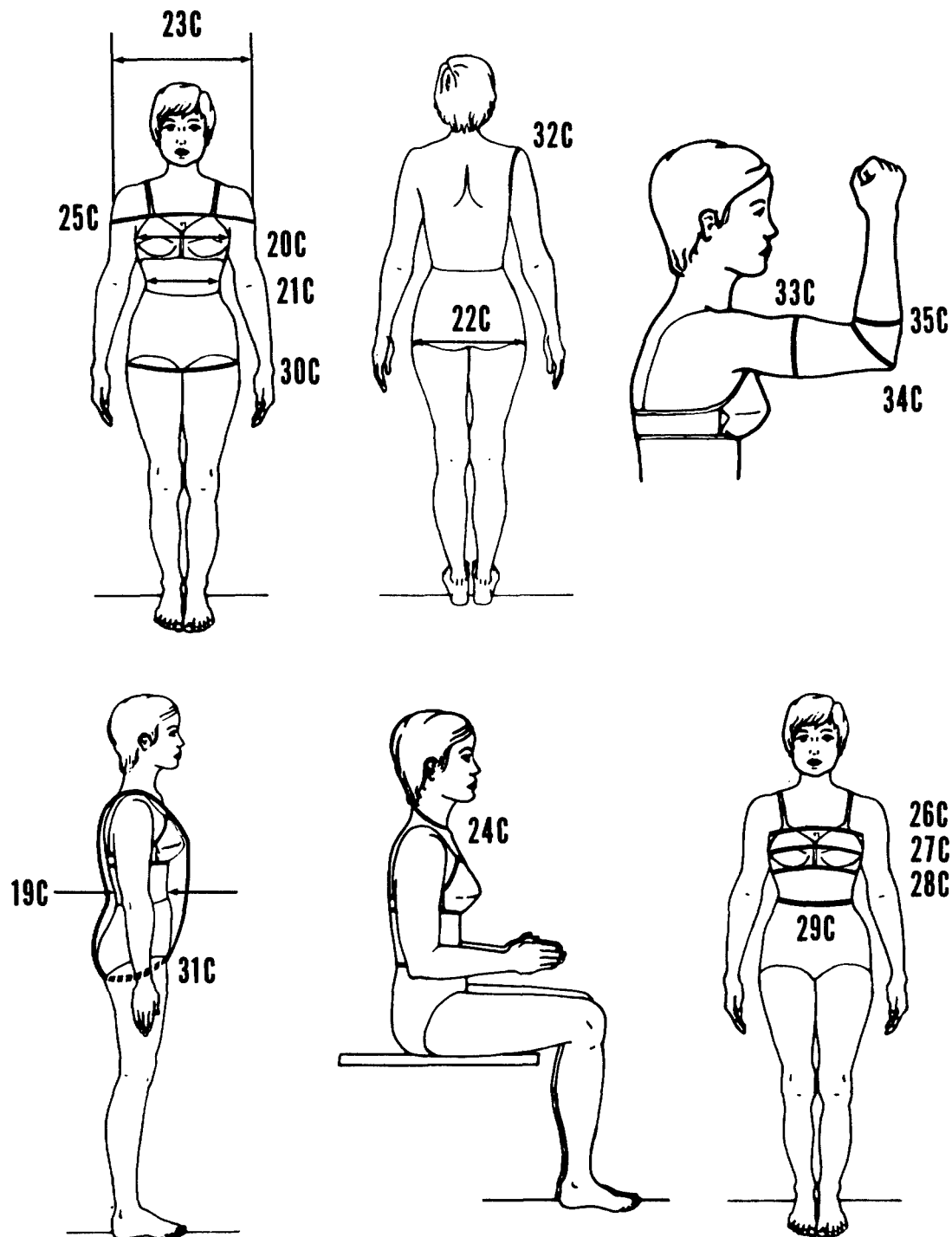
Figure 1. The visual index: core measurements (continued).

19C WAIST DEPTH: anterior-posterior depth of the torso at waist level.

20C CHEST BREADTH: left-right breadth of the torso at the level of
     the bust points.

21C WAIST BREADTH: left-right breadth of the torso at waist level.

22C HIP BREADTH: maximum horizontal breadth of the hips.

23C SHOULDER (BIDELTOID) BREADTH: horizontal distance across maximum
     lateral protrusions of the right and left deltoid muscles.

24C NECK CIRCUMFERENCE: circumference of the base of the neck (this cir-
     cumference is not in a plane perpendicular to the axis of the neck).

25C SHOULDER CIRCUMFERENCE: horizontal circumference of the shoulders at
     the level of the greatest lateral protrusion of the deltoid muscles.

26C CHEST CIRCUMFERENCE AT SCYE: horizontal circumference of the trunk
     measured with the tape high in the armpits.

27C BUST CIRCUMFERENCE: horizontal circumference of the trunk measured
     with the tape passing over the bra points.

28C CHEST CIRCUMFERENCE BELOW BUST: horizontal circumference of the
     trunk measured at a level just below the cups of the bra.

29C WAIST CIRCUMFERENCE: horizontal circumference of the waist at
     'natural' waist level.

30C HIP CIRCUMFERENCE: maximum circumference of the hips at the level
     of the maximum posterior protrusion of the buttocks.

31C VERTICAL TRUNK CIRCUMFERENCE: circumference of the torso measured
     with the tape passing through the crotch, over the protrusion of
     the buttock, the midshoulder point, and the tip of the bra. The
     tape follows the contour of the body's back but not its front.

32C ARM SCYE CIRCUMFERENCE: circumference of the scye measured with
     the tape passing through the armpit and over acromion.

33C BICEPS CIRCUMFERENCE, FLEXED: circumference of the arm at the level
     of the maximal protrusion of the biceps, measured with the elbow flexed
     90 degrees, the upper arm horizontal and the fist tightly clenched.

34C ELBOW CIRCUMFERENCE, FLEXED: distance around the elbow measured over
     its tip and through the crotch with arm in same position as 33C above.

35C FOREARM CIRCUMFERENCE, FLEXED: maximum circumference of the lower arm
     measured with the arm in same position as 33C above.

THE VISUAL INDEX
CORE MEASUREMENTS (CONT.)
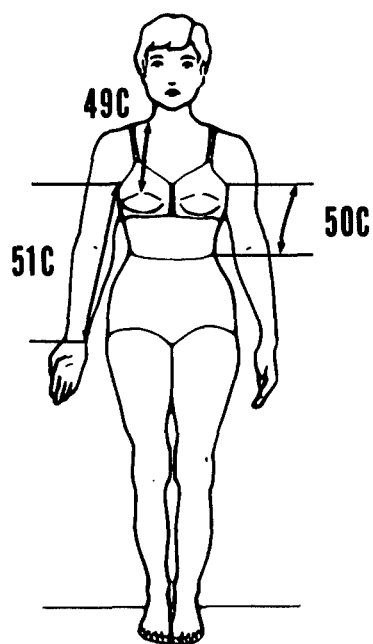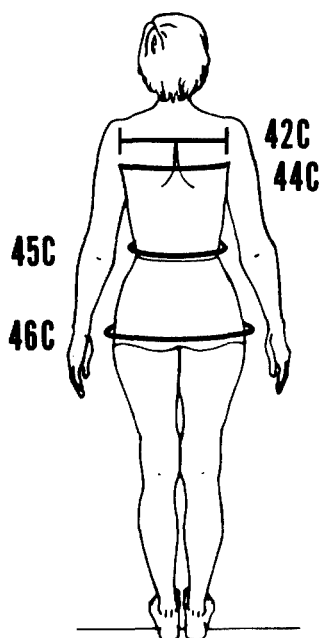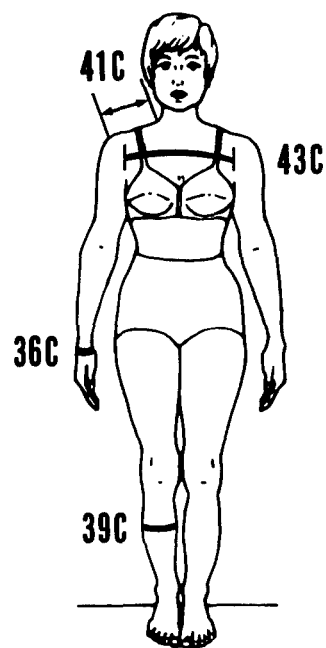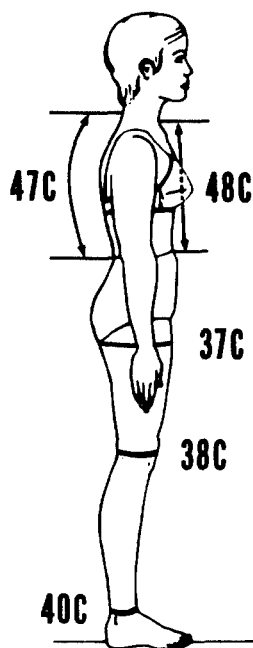
Figure 1. The visual index: core measurements (continued).

36C WRIST CIRCUMFERENCE: circumference of the wrist at stylion level.

37C UPPER THIGH CIRCUMFERENCE: circumference of the leg measured at the level of the lowest point of the gluteal furrow.

38C KNEE CIRCUMFERENCE: circumference of the knee at the level of the midpoint of the kneecap.

39C CALF CIRCUMFERENCE: maximum circumference of the calf.

40C ANKLE CIRCUMFERENCE: minimum circumference of the ankle.

41C SHOULDER LENGTH: surface distance from neck-shoulder junction to acromion.

42C INTERSCYE, BACK: surface distance across the back between points midway between the posterior edges of armpits and acromiale points.

43C INTERSCYE, FRONT: surface distance across the front between points midway between the anterior edges of armpits and acromiale points.

44C BACK CURVATURE-BUST LEVEL: surface distance across the back between midaxillary lines at the level of the bra points.

45C BACK CURVATURE-WAIST LEVEL: surface distance across the back between midaxillary lines at waist level.

46C BACK CURVATURE-HIP LEVEL: surface distance across the back between midaxillary lines at the level of the maximum protrusion of the buttocks.

47C WAIST BACK LENGTH: surface distance from the waist to cervicale.

48C WAIST FRONT LENGTH: surface distance from the waist to the anterior neck-torso juncture.

49C NECK TO BUSTPOINT: distance from the lateral neck-shoulder juncture to the bra tip with the tape held tense and not following the body contour.

50C AXILLA TO WAIST: surface distance from armpit to waist point in the midaxillary line.

51C SLEEVE INSEAM LENGTH: distance from the anterior edge of the armpit to the little finger side of the wrist measured with the arm slightly abducted, the palm held forward, and the tape tense.

THE VISUAL INDEX
CORE MEASUREMENTS (CONT.)
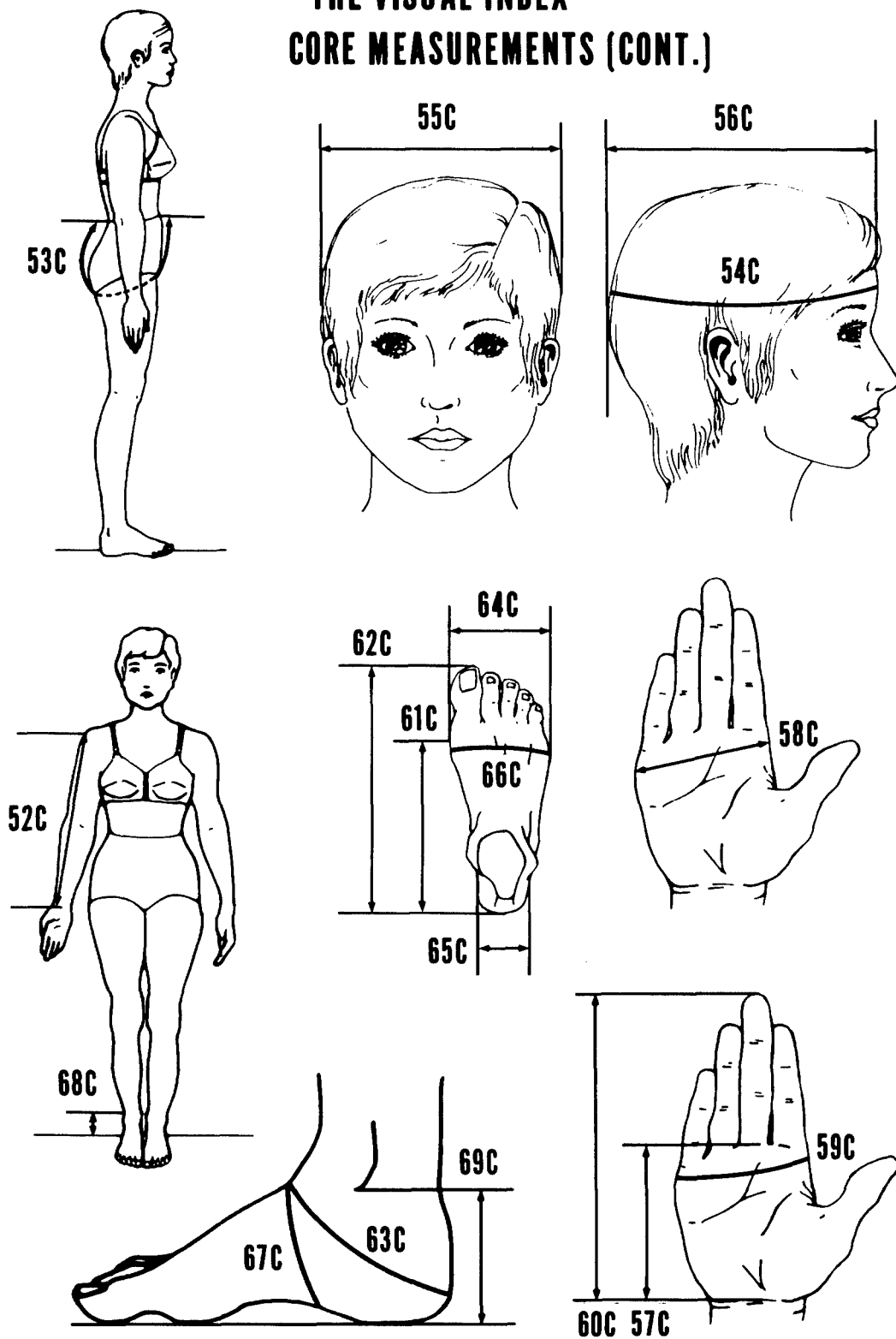
Figure 1. The visual index: core measurements (continued).

52C SLEEVE OUTSEAM LENGTH: distance from acromiale to the thumb side of the wrist; arm is slightly abducted, the palm held forward, and tape tense.

53C CROTCH LENGTH: surface distance from the waist directly above buttock protrusion, over the protrusion, and through the crotch to waist level in the midsagittal plane.

54C HEAD CIRCUMFERENCE: maximum circumference of the head measured with the tape passing above the brow ridges and nuchale.

55C HEAD BREADTH: maximum breadth of the head above the level of the ears.

56C HEAD LENGTH: maximum length of the head from the most anterior point between the brow ridges to the occiput.

57C PALM LENGTH: distance from wrist crease to skin crease at the base of the third finger, measured parallel to the long axis of the hand.

58C HAND BREADTH: breadth across the distal ends of the metacarpal bones.

59C HAND CIRCUMFERENCE: circumference measured around the metacarpal-phalangeal joints.

60C HAND LENGTH: distance from wrist crease to dactylion measured parallel to the long axis of the hand.

61C INSTEP LENGTH: distance measured parallel to the long axis of the foot, from heel level to the point of maximum medial protuberance of the foot.

62C FOOT LENGTH: length of the foot measured parallel to its long axis.

63C HEEL-ANKLE CIRCUMFERENCE: diagonal foot circumference measured with the tape passing under tip of the heel and over instep at foot-leg juncture.

64C FOOT BREADTH: maximum breadth of the foot as measured at right angles to its long axis.

65C HEEL BREADTH: maximum breadth of the calcaneus.

66C FOOT CIRCUMFERENCE: circumference of the foot as measured around the distal ends of the protuberances of the metatarsal bones.

67C INSTEP CIRCUMFERENCE: circumference of the foot in a plane perpendicular to the long axis of the foot at the level of the metatarsal-cuneiform joint.

68C ANKLE HEIGHT: height at the level of minimum ankle circumference.

69C SPHRYION HEIGHT: height of the most distal extension of the tibia on the inside of the foot.

TABLE 1A
SUMMARY STATISTICS AND SELECTED PERCENTILES
CORE MEASUREMENTS (N=1330)

METRIC UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
1C WEIGHT	59.92	8.51	43.1	46.7	49.3	54.1	59.6	65.1	70.6	74.5	83.9
2C STATURE	162.95	6.52	148.2	152.5	154.7	158.4	162.7	167.3	171.6	174.1	178.4
3C SHOULDER HEIGHT	133.48	6.0L	120.4	123.9	125.8	129.3	133.3	137.6	141.5	143.7	147.5
4C AXILLA HEIGHT	123.25	5.58	110.7	114.3	116.2	119.3	123.1	127.1	130.7	132.8	136.2
5C BUSTPOINT HEIGHT	118.29	5.63	106.0	109.3	111.1	114.4	118.2	122.1	125.7	127.8	131.5
6C WAIST HEIGHT	101.39	5.20	89.7	93.2	95.0	97.8	101.2	104.8	108.2	110.3	114.2
7C CROTCH HEIGHT	76.37	4.38	66.8	69.5	70.9	73.3	76.1	79.3	82.2	83.9	86.8
8C BUTTOCK HEIGHT	83.79	4.67	74.0	76.4	77.9	80.5	83.6	86.8	89.8	91.7	95.9
9C KNEECAP HEIGHT	47.90	2.65	42.1	43.8	44.6	46.0	47.8	49.7	51.5	52.5	54.2
10C CALF HEIGHT	32.55	2.30	27.8	29.0	29.7	30.9	32.4	34.1	35.6	36.6	38.3
11C SITTING HEIGHT	85.07	3.59	76.3	79.0	80.4	82.7	85.2	87.6	89.6	90.8	92.7
12C EYE HEIGHT/SIT	73.63	3.46	65.3	67.7	69.1	71.4	73.8	76.0	77.9	79.1	81.6
13C SHOULDER-ELBOW L	33.56	1.75	29.8	30.8	31.4	32.3	33.5	34.7	35.9	36.6	37.7
14C ELBOW-FINGERTIP	43.52	2.26	38.7	40.0	40.7	41.9	43.4	45.0	46.6	47.5	49.2
15C KNEE HEIGHT/SIT	50.99	2.60	45.5	46.9	47.7	49.2	50.9	52.7	54.4	55.5	57.3
16C POPLITEAL HEIGHT	41.68	2.35	36.4	38.0	38.8	40.1	41.6	43.3	44.8	45.7	47.3
17C BUTTOCK-KNEE LGTH	57.84	3.06	51.1	53.1	54.1	55.7	57.7	59.9	62.0	63.2	65.2
18C BUST DEPTH	22.91	2.21	18.7	19.6	20.2	21.4	22.7	24.3	25.8	26.8	29.0
19C WAIST DEPTH	18.28	2.18	14.4	15.3	15.9	16.8	18.0	19.4	21.0	22.2	25.0
20C CHEST BREADTH	28.24	1.82	24.5	25.4	25.9	27.0	28.1	29.4	30.6	31.4	33.1
21C WAIST BREADTH	25.57	2.42	21.2	22.1	22.7	23.9	25.3	26.9	28.7	30.0	33.0
22C HIP BREADTH	35.36	2.45	30.1	31.5	32.3	33.7	35.2	36.9	38.5	39.5	41.8
23C SHOULDER BREADTH	42.03	2.20	37.3	38.4	39.2	40.5	42.0	43.5	44.8	45.6	47.4
24C NECK CIRCUMFERENCE	32.35	1.57	29.1	29.9	30.4	31.3	32.3	33.4	34.4	35.0	36.3
25C SHOULDER CIRC	100.36	5.35	89.4	91.9	93.5	96.6	100.2	103.8	107.1	109.3	113.9

*WEIGHT IN KILOGRAMS; ALL OTHER MEASUREMENTS IN CENTIMETERS

TABLE 1A CONTINUED
SUMMARY STATISTICS AND SELECTED PERCENTILES
CORE MEASUREMENTS (N=1330)

METRIC UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
26C CHEST CIRC AT SCYE	85.52	5.11	75.2	77.5	79.1	82.0	85.3	88.7	92.1	94.3	99.3
27C BUST CIRCUMFERENCE	88.18	6.33	76.2	78.4	80.2	83.7	87.9	92.1	96.1	98.9	105.6
28C CHEST C BELOW BUST	74.80	4.94	65.9	67.4	68.7	71.3	74.5	77.7	81.0	83.3	89.0
29C WAIST CIRC	70.98	6.78	59.0	61.7	63.4	66.3	70.0	74.6	79.7	83.4	92.2
30C HIP CIRCUMFERENCE	95.49	6.30	81.6	85.5	87.7	91.3	95.3	99.4	103.4	106.0	111.9
31C VERTICAL TRUNK CIR	153.82	7.21	136.5	142.2	144.9	149.1	153.7	158.5	163.1	166.0	171.6
32C ARM CIRC AT SCYE	37.51	2.39	32.5	33.8	34.6	35.9	37.4	39.0	40.6	41.7	44.1
33C BICEPS CIRC, FLXD	26.87	2.27	21.9	23.2	24.0	25.3	26.8	28.3	29.7	30.7	32.8
34C ELBOW CIRC, FLXD	25.97	1.61	22.5	23.5	24.0	24.9	25.9	27.0	28.1	28.8	30.3
35C FOREARM CIRC, FLXD	24.62	1.52	21.2	22.1	22.7	23.6	24.6	25.6	26.6	27.1	28.3
36C WRIST CIRC	14.70	.68	13.2	13.6	13.8	14.2	14.7	15.2	15.6	15.8	16.2
37C UPPER THIGH CIRC	56.90	4.55	46.4	49.4	51.1	53.9	56.9	59.8	62.6	64.5	68.9
38C KNEE CIRCUMFERENCE	34.82	2.24	30.2	31.3	32.0	33.3	34.7	36.2	37.7	38.6	40.8
39C CALF CIRCUMFERENCE	35.08	2.49	29.8	31.0	31.9	33.3	35.0	36.7	38.3	39.2	41.2
40C ANKLE CIRC	20.73	1.25	17.9	18.7	19.2	19.9	20.7	21.6	22.4	22.8	23.7
41C SHOULDER LENGTH	15.00	1.06	12.5	13.3	13.7	14.3	15.0	15.7	16.4	16.8	17.7
42C INTERSCYE BACK	37.85	2.34	32.4	33.9	34.8	36.3	37.9	39.4	40.8	41.7	43.5
43C INTERSCYE FRONT	33.16	1.73	29.4	30.4	31.0	32.0	33.1	34.3	35.4	36.1	37.5
44C BACK ARC, BUST	41.96	3.12	35.3	37.0	38.1	39.8	41.8	43.9	45.9	47.3	50.5
45C BACK ARC, WAIST	35.29	3.42	29.1	30.6	31.5	33.0	34.8	37.1	39.7	41.6	46.1
46C BACK ARC, HIP	47.49	3.69	39.6	41.8	43.0	45.0	47.3	49.8	52.3	53.9	57.2
47C WAIST BACK	40.85	2.65	35.3	36.7	37.5	39.0	40.7	42.6	44.3	45.4	47.5
48C WAIST FRONT	36.73	2.62	31.6	32.8	33.5	34.9	36.5	38.3	40.1	41.3	44.2
49C NECK-BUSTPOINT LGT	25.28	2.08	21.0	21.9	22.6	23.8	25.2	26.7	28.0	28.8	30.5
50C AXILLA-WAIST LEVEL	23.09	2.51	18.1	19.3	20.1	21.4	22.9	24.5	26.3	27.5	30.6

*WEIGHT IN KILOGRAMS; ALL OTHER MEASUREMENTS IN CENTIMETERS

TABLE 1A   CONTINUED

SUMMARY STATISTICS AND SELECTED PERCENTILES
CORE MEASUREMENTS (N=1330)

METRIC UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
51C SLEEVE INSEAM	45.05	2.61	39.5	41.0	41.8	43.2	44.9	46.7	48.5	49.6	51.7
52C SLEEVE OUTSEAM	53.79	2.96	47.1	49.2	50.1	51.7	53.6	55.8	57.8	58.9	60.7
53C CROTCH LENGTH	72.92	5.45	58.1	63.7	66.2	69.7	73.1	76.5	79.6	81.5	85.2
54C HEAD CIRCUMFERENCE	54.92	1.64	51.4	52.3	52.9	53.8	54.9	56.0	57.0	57.7	59.3
55C HEAD BREADTH	14.61	.54	13.4	13.8	13.9	14.2	14.6	14.9	15.3	15.5	16.1
56C HEAD LENGTH	18.71	.67	17.1	17.6	17.9	18.3	18.7	19.2	19.6	19.8	20.3
57C PALM LENGTH	9.88	.52	8.8	9.1	9.2	9.5	9.9	10.2	10.6	10.8	11.2
58C HAND BREADTH	7.82	.39	7.0	7.2	7.3	7.5	7.8	8.1	8.3	8.5	8.7
59C HAND CIRCUMFERENCE	18.45	.86	16.5	17.0	17.3	17.8	18.4	19.0	19.6	19.9	20.4
60C HAND LENGTH	17.44	.90	15.5	16.1	16.3	16.8	17.4	18.0	18.7	19.0	19.7
61C INSTEP LENGTH	17.85	.98	15.7	16.3	16.6	17.2	17.8	18.5	19.1	19.5	20.4
62C FOOT LENGTH	24.32	1.25	21.6	22.3	22.8	23.5	24.3	25.1	26.0	26.5	27.5
63C HEEL-ANKLE CIRC	30.79	1.46	27.7	28.5	29.0	29.8	30.7	31.7	32.7	33.3	34.6
64C FOOT BREADTH	8.87	.51	7.7	8.0	8.2	8.5	8.9	9.2	9.5	9.7	10.2
65C HEEL BREADTH	6.09	.41	5.2	5.5	5.6	5.8	6.1	6.3	6.6	6.8	7.2
66C FOOT CIRCUMFERENCE	22.61	1.14	20.1	20.8	21.1	21.8	22.6	23.3	24.1	24.5	25.5
67C INSTEP CIRC	23.48	1.26	20.8	21.5	21.9	22.6	23.4	24.3	25.1	25.7	26.8
68C ANKLE HEIGHT	10.86	1.02	8.7	9.2	9.6	10.2	10.8	11.5	12.1	12.6	13.7
69C SPHYRION HEIGHT	6.46	.54	5.2	5.5	5.8	6.1	6.5	6.8	7.1	7.3	7.7
70C AGE	23.61	5.40	17.7	18.2	18.5	19.6	22.5	25.6	29.9	34.1	46.2

*WEIGHT IN KILOGRAMS; ALL OTHER MEASUREMENTS IN CENTIMETERS
AGE IN YEARS

SUMMARY STATISTICS AND SELECTED PERCENTILES
CORE MEASUREMENTS (N=1330)

| ENGLISH UNITS* | MEAN | SD | \- \- \- \- \- \- \- \- \- PERCENTILES \- \- \- \- \- \- \- \- \- | | | | | | | | |
			1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
1C WEIGHT	132.11	18.76	95.0	103.0	108.7	119.3	131.4	143.6	155.7	164.2	184.9
2C STATURE	64.15	2.57	58.3	60.1	60.9	62.4	64.1	65.9	67.5	68.5	70.2
3C SHOULDER HEIGHT	52.55	2.36	47.4	48.8	49.5	50.9	52.5	54.2	55.7	56.6	58.1
4C AXILLA HEIGHT	48.52	2.20	43.6	45.0	45.7	47.0	48.5	50.0	51.4	52.3	53.6
5C BUSTPOINT HEIGHT	46.57	2.21	41.8	43.0	43.7	45.0	46.5	48.1	49.5	50.3	51.8
6C WAIST HEIGHT	39.92	2.05	35.3	36.7	37.4	38.5	39.8	41.2	42.6	43.4	45.0
7C CROTCH HEIGHT	30.07	1.72	26.3	27.4	27.9	28.8	30.0	31.2	32.4	33.3	34.2
8C BUTTOCK HEIGHT	32.99	1.84	29.1	30.1	30.7	31.7	32.9	34.2	35.4	36.1	37.8
9C KNEECAP HEIGHT	18.86	1.04	16.6	17.2	17.6	18.1	18.8	19.6	20.3	20.7	21.3
10C CALF HEIGHT	12.81	.91	10.9	11.4	11.7	12.2	12.8	13.4	14.0	14.4	15.1
11C SITTING HEIGHT	33.49	1.41	30.0	31.1	31.7	32.6	33.5	34.5	35.3	35.8	36.5
12C EYE HEIGHT/SIT	28.99	1.36	25.7	26.7	27.2	28.1	29.0	29.9	30.7	31.1	32.1
13C SHOULDER-ELBOW L	13.21	.69	11.7	12.1	12.4	12.7	13.2	13.7	14.1	14.4	14.8
14C ELBOW-FINGERTIP	17.13	.90	15.2	15.7	16.0	16.5	17.1	17.7	18.3	18.7	19.4
15C KNEE HEIGHT/SIT	20.07	1.02	17.9	18.5	18.8	19.4	20.0	20.8	21.4	21.8	22.6
16C POPLITEAL HEIGHT	16.41	.93	14.3	15.0	15.3	15.8	16.4	17.0	17.6	18.0	18.6
17C BUTTOCK-KNEE LGTH	22.77	1.20	20.1	20.9	21.3	21.9	22.7	23.6	24.4	24.9	25.7
18C BUST DEPTH	9.02	.87	7.3	7.7	8.0	8.4	9.0	9.5	10.1	10.5	11.4
19C WAIST DEPTH	7.20	.86	5.7	6.0	6.2	6.6	7.1	7.6	8.3	8.8	9.9
20C CHEST BREADTH	11.12	.72	9.6	10.3	10.2	10.6	11.1	11.6	12.0	12.4	13.1
21C WAIST BREADTH	10.07	.95	8.3	8.7	8.9	9.4	10.0	10.6	11.3	11.8	13.0
22C HIP BREADTH	13.92	.96	11.9	12.4	12.7	13.3	13.9	14.5	15.1	15.6	16.5
23C SHOULDER BREADTH	16.55	.87	14.7	15.1	15.4	15.9	16.5	17.1	17.6	18.0	18.7
24C NECK CIRCUMFERENCE	12.74	.62	11.4	11.8	12.0	12.3	12.7	13.1	13.5	13.8	14.3
25C SHOULDER CIRC	39.51	2.11	35.2	36.2	36.8	38.0	39.4	40.9	42.2	43.0	44.8

*WEIGHT IN POUNDS; ALL OTHER MEASUREMENTS IN INCHES

TABLE 1B CONTINUED

SUMMARY STATISTICS AND SELECTED PERCENTILES
CORE MEASUREMENTS (N=1330)

ENGLISH UNITS*	MEAN	SD	PERCENTILES								
			1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
26C CHEST CIRC AT SCYE	33.67	2.01	29.6	30.5	31.1	32.3	33.6	34.9	36.2	37.1	39.1
27C BUST CIRCUMFERENCE	34.72	2.49	30.0	30.8	31.6	33.0	34.6	36.2	37.8	38.9	41.6
28C CHEST C BELOW BUST	29.45	1.94	26.0	26.5	27.0	28.1	29.3	30.6	31.9	32.8	35.0
29C WAIST CIRC	27.94	2.67	23.2	24.3	24.9	26.1	27.6	29.4	31.4	32.9	36.3
30C HIP CIRCUMFERENCE	37.59	2.48	32.1	33.7	34.5	35.9	37.5	39.1	40.7	41.7	44.1
31C VERTICAL TRUNK CIR	60.56	2.84	53.7	56.0	57.0	58.7	60.5	62.4	64.2	65.4	67.6
32C ARM CIRC AT SCYE	14.77	.94	12.8	13.3	13.6	14.1	14.7	15.3	16.0	16.4	17.4
33C BICEPS CIRC, FLXD	10.58	.69	8.6	9.1	9.4	10.0	10.6	11.1	11.7	12.1	12.9
34C ELBOW CIRC, FLXD	10.23	.64	8.9	9.2	9.4	9.8	10.2	10.6	11.1	11.3	11.9
35C FOREARM CIRC, FLXD	9.69	.60	8.3	8.7	8.9	9.3	9.7	10.1	10.5	10.7	11.1
36C WRIST CIRC	5.79	.27	5.2	5.4	5.5	5.6	5.8	6.0	6.1	6.2	6.4
37C UPPER THIGH CIRC	22.40	1.79	18.3	19.4	20.1	21.2	22.4	23.5	24.6	25.4	27.1
38C KNEE CIRCUMFERENCE	13.71	.88	11.9	12.3	12.6	13.1	13.7	14.3	14.8	15.2	16.1
39C CALF CIRCUMFERENCE	13.81	.98	11.7	12.2	12.5	13.1	13.8	14.5	15.1	15.4	16.2
40C ANKLE CIRC	8.16	.49	7.1	7.4	7.5	7.8	8.1	8.5	8.8	9.0	9.3
41C SHOULDER LENGTH	5.90	.42	4.9	5.2	5.4	5.6	5.9	6.2	6.4	6.6	7.0
42C INTERSCYE BACK	14.90	.92	12.7	13.4	13.7	14.3	14.9	15.5	16.1	16.4	17.1
43C INTERSCYE FRONT	13.06	.68	11.6	12.0	12.2	12.6	13.0	13.5	13.9	14.2	14.8
44C BACK ARC, BUST	16.52	1.23	13.9	14.6	15.0	15.7	16.5	17.3	18.1	18.6	19.9
45C BACK ARC, WAIST	13.89	1.35	11.5	12.0	12.4	13.0	13.7	14.6	15.6	16.4	18.2
46C BACK ARC, HIP	18.70	1.45	15.6	16.5	16.9	17.7	18.6	19.6	20.6	21.2	22.5
47C WAIST BACK	16.08	1.04	13.9	14.5	14.8	15.3	16.0	16.8	17.4	17.9	18.7
48C WAIST FRONT	14.46	1.03	12.4	12.9	13.2	13.7	14.4	15.1	15.8	16.3	17.4
49C NECK-BUSTPOINT LGT	9.95	.82	8.3	8.6	8.9	9.4	9.9	10.5	11.0	11.3	12.0
50C AXILLA-WAIST LEVEL	9.09	.99	7.1	7.6	7.9	8.4	9.0	9.7	10.3	10.8	12.0

*WEIGHT IN POUNDS; ALL OTHER MEASUREMENTS IN INCHES

TABLE 1B CONTINUED
SUMMARY STATISTICS AND SELECTED PERCENTILES
CORE MEASUREMENTS (N=1330)

ENGLISH UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
51C SLEEVE INSEAM	17.74	1.03	15.5	16.1	16.4	17.0	17.7	18.4	19.1	19.5	20.3
52C SLEEVE OUTSEAM	21.18	1.17	18.5	19.4	19.7	20.4	21.1	22.0	22.7	23.2	23.9
53C CROTCH LENGTH	28.71	2.15	22.9	25.1	26.0	27.4	28.8	30.1	31.3	32.1	33.5
54C HEAD CIRCUMFERENCE	21.62	.64	20.2	20.6	20.8	21.2	21.6	22.0	22.5	22.7	23.3
55C HEAD BREADTH	5.75	.21	5.3	5.4	5.5	5.6	5.7	5.9	6.0	6.1	6.3
56C HEAD LENGTH	7.37	.26	6.7	6.9	7.0	7.2	7.4	7.5	7.7	7.8	8.0
57C PALM LENGTH	3.89	.21	3.4	3.6	3.6	3.7	3.9	4.0	4.2	4.2	4.4
58C HAND BREADTH	3.08	.15	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.3	3.4
59C HAND CIRCUMFERENCE	7.26	.34	6.5	6.7	6.8	7.0	7.3	7.5	7.7	7.8	8.0
60C HAND LENGTH	6.87	.36	6.1	6.3	6.4	6.6	6.8	7.1	7.4	7.5	7.7
61C INSTEP LENGTH	7.03	.39	6.2	6.4	6.5	6.8	7.0	7.3	7.5	7.7	8.0
62C FOOT LENGTH	9.57	.49	8.5	8.8	9.0	9.2	9.6	9.9	10.2	10.4	10.8
63C HEEL-ANKLE CIRC	12.12	.57	10.9	11.2	11.4	11.7	12.1	12.5	12.9	13.1	13.6
64C FOOT BREADTH	3.49	.20	3.0	3.2	3.2	3.4	3.5	3.6	3.7	3.8	4.0
65C HEEL BREADTH	2.40	.16	2.1	2.2	2.2	2.3	2.4	2.5	2.6	2.7	2.8
66C FOOT CIRCUMFERENCE	8.90	.45	7.9	8.2	8.3	8.6	8.9	9.2	9.5	9.7	10.1
67C INSTEP CIRC	9.24	.50	8.2	8.5	8.6	8.9	9.2	9.6	9.9	10.1	10.5
68C ANKLE HEIGHT	4.27	.40	3.4	3.6	3.8	4.0	4.3	4.5	4.8	5.0	5.4
69C SPHYRION HEIGHT	2.54	.21	2.0	2.2	2.3	2.4	2.5	2.7	2.8	2.9	3.1
70C AGE	23.61	5.40	17.7	18.2	18.5	19.6	22.5	25.6	29.9	34.1	46.2

*WEIGHT IN POUNDS; ALL OTHER MEASUREMENTS IN INCHES
AGE IN YEARS

TABLE 2
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		1C	2C	3C	4C	5C	6C	7C	8C
1C	WEIGHT		.536	.567	.522	.463	.441	.402	.486
2C	STATURE	.536		.968	.969	.937	.897	.861	.829
3C	SHOULDER HEIGHT	.567	.968		.987	.945	.891	.869	.852
4C	AXILLA HEIGHT	.522	.969	.987		.955	.900	.885	.862
5C	BUSTPOINT HEIGHT	.463	.937	.945	.955		.882	.880	.855
6C	WAIST HEIGHT	.441	.897	.891	.900	.882		.882	.844
7C	CROTCH HEIGHT	.402	.861	.869	.885	.880	.882		.937
8C	BUTTOCK HEIGHT	.486	.829	.852	.862	.855	.844	.937	
9C	KNEECAP HEIGHT	.426	.848	.860	.868	.858	.852	.919	.891
10C	CALF HEIGHT	.416	.728	.745	.749	.746	.750	.843	.822
11C	SITTING HEIGHT	.421	.767	.695	.686	.640	.570	.394	.378
12C	EYE HEIGHT/SIT	.399	.738	.677	.666	.623	.551	.372	.358
13C	SHOULDER-ELBOW L	.472	.808	.826	.810	.800	.787	.826	.799
14C	ELBOW-FINGERTIP	.451	.731	.734	.743	.746	.737	.817	.804
15C	KNEE HEIGHT/SIT	.546	.857	.860	.859	.848	.850	.911	.880
16C	POPLITEAL HEIGHT	.401	.847	.848	.859	.855	.853	.923	.878
17C	BUTTOCK-KNEE LGTH	.720	.761	.784	.775	.751	.748	.799	.820
18C	BUST DEPTH	.739	.164	.214	.166	.103	.107	.094	.175
19C	WAIST DEPTH	.715	.123	.175	.130	.091	.017	.081	.190
20C	CHEST BREADTH	.776	.269	.313	.261	.191	.194	.168	.249
21C	WAIST BREADTH	.737	.245	.297	.252	.186	.081	.190	.274
22C	HIP BREADTH	.801	.398	.417	.376	.318	.317	.228	.292
23C	SHOULDER BREADTH	.813	.369	.390	.352	.308	.298	.272	.347
24C	NECK CIRCUMFERENCE	.649	.359	.359	.340	.307	.277	.285	.346
25C	SHOULDER CIRC	.833	.331	.354	.315	.273	.266	.247	.329
26C	CHEST CIRC AT SCYE	.825	.286	.326	.276	.231	.223	.210	.277
27C	BUST CIRCUMFERENCE	.808	.239	.290	.239	.172	.173	.151	.228
28C	CHEST C BELOW BUST	.801	.276	.324	.275	.234	.197	.168	.243
29C	WAIST CIRC	.787	.208	.265	.218	.162	.061	.144	.246
30C	HIP CIRCUMFERENCE	.903	.414	.443	.402	.343	.336	.260	.348
31C	VERTICAL TRUNK CIR	.807	.658	.681	.641	.577	.495	.356	.407
32C	ARM CIRC AT SCYE	.818	.373	.436	.360	.310	.290	.265	.344
33C	BICEPS CIRC, FLXD	.817	.207	.250	.200	.158	.137	.120	.214
34C	ELBOW CIRC, FLXD	.662	.468	.488	.460	.433	.401	.409	.451
35C	FOREARM CIRC, FLXD	.780	.334	.360	.319	.287	.257	.254	.320

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		1C	2C	3C	4C	5C	6C	7C	8C
36C	WRIST CIRC	.652	.464	.461	.435	.412	.388	.365	.391
37C	UPPER THIGH CIRC	.883	.287	.325	.285	.238	.225	.184	.287
38C	KNEE CIRCUMFERENCE	.820	.419	.444	.410	.365	.360	.313	.368
39C	CALF CIRCUMFERENCE	.777	.304	.318	.280	.240	.235	.176	.238
40C	ANKLE CIRC	.639	.391	.384	.358	.317	.315	.231	.268
41C	SHOULDER LENGTH	.247	.373	.274	.302	.310	.330	.319	.293
42C	INTERSCYE BACK	.479	.276	.235	.236	.203	.227	.230	.249
43C	INTERSCYE FRONT	.567	.387	.365	.352	.344	.331	.314	.342
44C	BACK ARC, BUST	.749	.216	.259	.215	.162	.158	.133	.205
45C	BACK ARC, WAIST	.761	.199	.252	.205	.146	.065	.127	.218
46C	BACK ARC, HIP	.791	.321	.357	.320	.270	.249	.189	.272
47C	WAIST BACK	.313	.520	.498	.487	.435	.269	.322	.313
48C	WAIST FRONT	.399	.368	.372	.348	.320	.039	.187	.234
49C	NECK-BUSTPOINT LGT	.569	.276	.272	.228	.043	.202	.144	.175
50C	AXILLA-WAIST LEVEL	.150	.284	.309	.310	.274	.006	.139	.160
51C	SLEEVE INSEAM	.357	.746	.736	.763	.767	.765	.857	.825
52C	SLEEVE OUTSEAM	.433	.782	.799	.789	.789	.781	.847	.816
53C	CROTCH LENGTH	.636	.424	.423	.390	.353	.486	.205	.240
54C	HEAD CIRCUMFERENCE	.409	.364	.333	.334	.317	.319	.324	.366
55C	HEAD BREADTH	.317	.154	.149	.124	.095	.115	.084	.117
56C	HEAD LENGTH	.317	.370	.336	.343	.327	.314	.320	.345
57C	PALM LENGTH	.340	.585	.574	.585	.590	.580	.629	.610
58C	HAND BREADTH	.508	.433	.432	.417	.409	.393	.402	.419
59C	HAND CIRCUMFERENCE	.534	.448	.445	.423	.411	.395	.396	.411
60C	HAND LENGTH	.400	.634	.629	.637	.642	.625	.693	.680
61C	INSTEP LENGTH	.508	.629	.618	.617	.604	.612	.646	.650
62C	FOOT LENGTH	.517	.693	.681	.684	.672	.667	.706	.707
63C	HEEL-ANKLE CIRC	.642	.616	.618	.610	.591	.593	.599	.636
64C	FOOT BREADTH	.493	.413	.406	.390	.373	.366	.341	.332
65C	HEEL BREADTH	.499	.306	.320	.307	.304	.301	.340	.375
66C	FOOT CIRCUMFERENCE	.587	.472	.465	.451	.428	.423	.395	.410
67C	INSTEP CIRC	.592	.462	.468	.450	.441	.443	.461	.496
68C	ANKLE HEIGHT	.171	.505	.506	.516	.522	.499	.564	.546
69C	SPHYRION HEIGHT	.239	.402	.386	.371	.341	.339	.275	.252
70C	AGE	.181	.057	.086	.056	.049	.016	-.018	.026

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		9C	10C	11C	12C	13C	14C	15C	16C
1C	WEIGHT	.426	.416	.421	.399	.472	.451	.546	.401
2C	STATURE	.848	.728	.767	.738	.808	.731	.857	.847
3C	SHOULDER HEIGHT	.860	.745	.695	.677	.826	.734	.860	.848
4C	AXILLA HEIGHT	.868	.749	.686	.666	.810	.743	.859	.859
5C	BUSTPOINT HEIGHT	.858	.746	.640	.623	.800	.746	.848	.855
6C	WAIST HEIGHT	.852	.750	.570	.551	.787	.737	.850	.853
7C	CROTCH HEIGHT	.919	.843	.394	.372	.826	.817	.911	.923
8C	BUTTOCK HEIGHT	.891	.822	.378	.358	.799	.804	.880	.878
9C	KNEECAP HEIGHT		.843	.425	.405	.794	.811	.919	.925
10C	CALF HEIGHT	.843		.294	.266	.715	.777	.856	.848
11C	SITTING HEIGHT	.425	.294		.965	.462	.327	.444	.418
12C	EYE HEIGHT/SIT	.405	.266	.965		.448	.300	.417	.398
13C	SHOULDER-ELBOW L	.794	.715	.462	.448		.785	.793	.800
14C	ELBOW-FINGERTIP	.811	.777	.327	.300	.785		.816	.841
15C	KNEE HEIGHT/SIT	.919	.856	.444	.417	.793	.816		.935
16C	POPLITEAL HEIGHT	.925	.848	.418	.398	.800	.841	.935	
17C	BUTTOCK-KNEE LGTH	.759	.743	.352	.327	.753	.741	.813	.765
18C	BUST DEPTH	.139	.129	.126	.122	.176	.144	.207	.077
19C	WAIST DEPTH	.116	.148	.035	.026	.151	.135	.187	.054
20C	CHEST BREADTH	.211	.194	.226	.214	.260	.227	.298	.175
21C	WAIST BREADTH	.213	.214	.161	.154	.248	.204	.288	.157
22C	HIP BREADTH	.251	.285	.402	.389	.330	.257	.383	.248
23C	SHOULDER BREADTH	.290	.277	.296	.280	.356	.345	.386	.274
24C	NECK CIRCUMFERENCE	.301	.275	.279	.256	.310	.358	.340	.275
25C	SHOULDER CIRC	.270	.262	.253	.235	.334	.335	.363	.252
26C	CHEST CIRC AT SCYE	.235	.232	.227	.213	.294	.283	.328	.212
27C	BUST CIRCUMFERENCE	.191	.177	.189	.185	.247	.207	.270	.155
28C	CHEST C BELOW BUST	.219	.181	.240	.231	.259	.223	.295	.172
29C	WAIST CIRC	.181	.194	.123	.118	.226	.203	.252	.139
30C	HIP CIRCUMFERENCE	.292	.304	.384	.370	.356	.308	.410	.261
31C	VERTICAL TRUNK CIR	.406	.343	.713	.697	.465	.356	.484	.374
32C	ARM CIRC AT SCYE	.290	.276	.296	.282	.405	.320	.372	.263
33C	BICEPS CIRC, FLXD	.140	.179	.167	.155	.171	.210	.252	.112
34C	ELBOW CIRC, FLXD	.424	.409	.312	.296	.453	.482	.489	.412
35C	FOREARM CIRC, FLXD	.281	.293	.242	.230	.318	.366	.385	.269

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		9C	10C	11C	12C	13C	14C	15C	16C
36C	WRIST CIRC	.386	.362	.367	.349	.417	.482	.469	.386
37C	UPPER THIGH CIRC	.202	.250	.243	.225	.247	.230	.341	.180
38C	KNEE CIRCUMFERENCE	.319	.371	.336	.321	.378	.367	.472	.307
39C	CALF CIRCUMFERENCE	.198	.190	.296	.284	.248	.233	.341	.187
40C	ANKLE CIRC	.263	.193	.392	.387	.287	.282	.375	.255
41C	SHOULDER LENGTH	.328	.276	.298	.287	.298	.362	.368	.357
42C	INTERSCYE BACK	.240	.224	.211	.200	.256	.284	.311	.256
43C	INTERSCYE FRONT	.335	.303	.278	.266	.362	.405	.404	.336
44C	BACK ARC, BUST	.164	.144	.182	.178	.220	.194	.242	.132
45C	BACK ARC, WAIST	.162	.170	.135	.131	.204	.178	.228	.120
46C	BACK ARC, HIP	.228	.244	.288	.275	.280	.259	.301	.181
47C	WAIST BACK	.339	.276	.535	.519	.365	.298	.344	.331
48C	WAIST FRONT	.214	.152	.405	.403	.255	.183	.226	.188
49C	NECK-BUSTPOINT LGT	.175	.153	.283	.281	.223	.161	.240	.155
50C	AXILLA-WAIST LEVEL	.154	.097	.330	.328	.163	.114	.100	.113
51C	SLEEVE INSEAM	.806	.759	.327	.305	.864	.866	.808	.825
52C	SLEEVE OUTSEAM	.811	.761	.389	.367	.922	.855	.831	.832
53C	CROTCH LENGTH	.248	.225	.479	.462	.281	.208	.350	.235
54C	HEAD CIRCUMFERENCE	.324	.364	.236	.180	.311	.427	.386	.335
55C	HEAD BREADTH	.099	.137	.155	.112	.136	.165	.160	.113
56C	HEAD LENGTH	.319	.319	.261	.220	.297	.382	.362	.326
57C	PALM LENGTH	.632	.605	.304	.279	.572	.787	.647	.651
58C	HAND BREADTH	.419	.406	.265	.239	.428	.553	.466	.414
59C	HAND CIRCUMFERENCE	.426	.401	.293	.267	.430	.547	.486	.424
60C	HAND LENGTH	.697	.671	.305	.277	.639	.871	.720	.717
61C	INSTEP LENGTH	.641	.609	.336	.312	.594	.732	.685	.655
62C	FOOT LENGTH	.713	.667	.385	.357	.645	.799	.747	.721
63C	HEEL-ANKLE CIRC	.627	.588	.350	.331	.568	.680	.694	.622
64C	FOOT BREADTH	.372	.328	.301	.280	.354	.413	.449	.385
65C	HEEL BREADTH	.357	.405	.066	.047	.335	.487	.440	.381
66C	FOOT CIRCUMFERENCE	.420	.360	.333	.313	.404	.456	.501	.431
67C	INSTEP CIRC	.485	.486	.232	.209	.436	.554	.564	.488
68C	ANKLE HEIGHT	.589	.528	.256	.240	.456	.504	.504	.552
69C	SPHYRION HEIGHT	.337	.314	.407	.394	.269	.217	.378	.350
70C	AGE	.054	.031	.075	.098	.070	.047	.041	.001

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		17C	18C	19C	20C	21C	22C	23C	24C
1C	WEIGHT	.720	.739	.715	.776	.737	.801	.813	.649
2C	STATURE	.761	.164	.123	.269	.245	.398	.369	.359
3C	SHOULDER HEIGHT	.784	.214	.175	.313	.297	.417	.390	.359
4C	AXILLA HEIGHT	.775	.166	.130	.261	.252	.376	.352	.340
5C	BUSTPOINT HEIGHT	.751	.103	.091	.191	.186	.318	.308	.307
6C	WAIST HEIGHT	.748	.107	.017	.194	.081	.317	.298	.277
7C	CROTCH HEIGHT	.799	.094	.081	.168	.190	.228	.272	.285
8C	BUTTOCK HEIGHT	.820	.175	.199	.249	.274	.292	.347	.346
9C	KNEECAP HEIGHT	.759	.139	.116	.211	.213	.251	.290	.301
10C	CALF HEIGHT	.743	.129	.148	.194	.214	.285	.277	.275
11C	SITTING HEIGHT	.352	.126	.035	.226	.161	.402	.296	.279
12C	EYE HEIGHT/SIT	.327	.122	.026	.214	.154	.389	.280	.256
13C	SHOULDER-ELBOW L	.753	.176	.151	.260	.248	.330	.356	.310
14C	ELBOW-FINGERTIP	.741	.144	.135	.227	.204	.257	.345	.358
15C	KNEE HEIGHT/SIT	.813	.207	.187	.298	.288	.383	.386	.340
16C	POPLITEAL HEIGHT	.765	.077	.054	.175	.157	.248	.274	.275
17C	BUTTOCK-KNEE LGTH		.385	.390	.422	.423	.574	.510	.436
18C	BUST DEPTH	.385		.726	.728	.668	.528	.656	.494
19C	WAIST DEPTH	.390	.726		.682	.787	.485	.630	.523
20C	CHEST BREADTH	.422	.728	.682		.726	.583	.819	.553
21C	WAIST BREADTH	.423	.668	.787	.726		.553	.674	.537
22C	HIP BREADTH	.574	.528	.485	.583	.553		.596	.383
23C	SHOULDER BREADTH	.510	.656	.630	.819	.674	.596		.619
24C	NECK CIRCUMFERENCE	.436	.494	.523	.553	.537	.383	.619	
25C	SHOULDER CIRC	.506	.709	.669	.828	.695	.590	.936	.652
26C	CHEST CIRC AT SCYE	.480	.767	.697	.854	.706	.590	.855	.614
27C	BUST CIRCUMFERENCE	.449	.964	.738	.858	.724	.586	.771	.563
28C	CHEST C BELOW BUST	.438	.768	.716	.833	.723	.580	.762	.569
29C	WAIST CIRC	.456	.732	.895	.754	.926	.571	.705	.588
30C	HIP CIRCUMFERENCE	.637	.650	.627	.679	.664	.906	.709	.522
31C	VERTICAL TRUNK CIR	.579	.550	.486	.595	.535	.689	.620	.509
32C	ARM CIRC AT SCYE	.520	.685	.652	.729	.669	.590	.737	.608
33C	BICEPS CIRC, FLXD	.452	.664	.638	.670	.638	.625	.717	.556
34C	ELBOW CIRC, FLXD	.538	.421	.426	.487	.465	.435	.555	.533
35C	FOREARM CIRC, FLXD	.503	.559	.553	.614	.581	.539	.685	.623

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		17C	18C	19C	20C	21C	22C	23C	24C
36C	WRIST CIRC	.485	.399	.386	.473	.422	.438	.560	.550
37C	UPPER THIGH CIRC	.570	.635	.625	.658	.648	.827	.691	.526
38C	KNEE CIRCUMFERENCE	.596	.524	.499	.554	.538	.731	.602	.451
39C	CALF CIRCUMFERENCE	.453	.494	.458	.523	.497	.665	.574	.454
40C	ANKLE CIRC	.400	.347	.310	.408	.373	.513	.453	.395
41C	SHOULDER LENGTH	.299	.064	.026	.184	.085	.188	.362	.095
42C	INTERSCYE BACK	.352	.376	.357	.517	.420	.296	.618	.408
43C	INTERSCYE FRONT	.432	.403	.369	.542	.401	.424	.688	.457
44C	BACK ARC, BUST	.396	.793	.671	.807	.697	.545	.735	.515
45C	BACK ARC, WAIST	.419	.717	.839	.737	.886	.553	.684	.566
46C	BACK ARC, HIP	.560	.581	.579	.597	.592	.782	.628	.481
47C	WAIST BACK	.298	.127	.198	.175	.371	.221	.212	.244
48C	WAIST FRONT	.262	.323	.409	.335	.529	.273	.319	.231
49C	NECK-BUSTPOINT LGT	.339	.616	.412	.546	.453	.451	.499	.354
50C	AXILLA-WAIST LEVEL	.119	.063	.196	.101	.368	.086	.092	.134
51C	SLEEVE INSEAM	.722	.075	.071	.135	.155	.206	.261	.262
52C	SLEEVE OUTSEAM	.750	.135	.121	.229	.210	.283	.329	.282
53C	CROTCH LENGTH	.448	.403	.288	.449	.194	.611	.478	.351
54C	HEAD CIRCUMFERENCE	.396	.229	.202	.287	.255	.264	.337	.398
55C	HEAD BREADTH	.186	.246	.201	.276	.253	.224	.278	.307
56C	HEAD LENGTH	.342	.135	.105	.210	.160	.197	.246	.268
57C	PALM LENGTH	.539	.097	.082	.166	.140	.196	.267	.308
58C	HAND BREADTH	.465	.288	.269	.337	.315	.295	.435	.474
59C	HAND CIRCUMFERENCE	.475	.305	.287	.369	.331	.314	.459	.475
60C	HAND LENGTH	.603	.120	.119	.199	.182	.215	.310	.356
61C	INSTEP LENGTH	.668	.223	.208	.274	.277	.336	.374	.404
62C	FOOT LENGTH	.689	.216	.190	.274	.274	.339	.377	.382
63C	HEEL-ANKLE CIRC	.671	.330	.307	.396	.365	.428	.489	.476
64C	FOOT BREADTH	.421	.260	.235	.343	.275	.326	.397	.405
65C	HEEL BREADTH	.502	.314	.304	.344	.297	.332	.396	.368
66C	FOOT CIRCUMFERENCE	.493	.333	.296	.390	.335	.388	.475	.464
67C	INSTEP CIRC	.545	.323	.325	.393	.353	.356	.465	.503
68C	ANKLE HEIGHT	.366	.068	.061	.085	.097	-012	.163	.225
69C	SPHYRION HEIGHT	.198	.063	.046	.167	.106	.218	.193	.166
70C	AGE	.118	.238	.243	.168	.213	.212	.133	.068

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		_25C	_26C	_27C	_28C	_29C	_30C	_31C	_32C_
1C	WEIGHT	.833	.825	.808	.801	.787	.903	.807	.818
2C	STATURE	.331	.286	.239	.276	.208	.414	.658	.373
3C	SHOULDER HEIGHT	.354	.326	.290	.324	.265	.443	.681	.436
4C	AXILLA HEIGHT	.315	.276	.239	.275	.218	.402	.641	.360
5C	BUSTPOINT HEIGHT	.273	.231	.172	.234	.162	.343	.577	.310
6C	WAIST HEIGHT	.266	.223	.173	.197	.061	.336	.495	.290
7C	CROTCH HEIGHT	.247	.200	.151	.168	.144	.260	.356	.265
8C	BUTTOCK HEIGHT	.329	.277	.228	.243	.246	.348	.407	.344
9C	KNEECAP HEIGHT	.270	.235	.191	.219	.181	.292	.406	.290
10C	CALF HEIGHT	.262	.232	.177	.181	.194	.304	.343	.276
11C	SITTING HEIGHT	.253	.227	.189	.240	.123	.384	.713	.296
12C	EYE HEIGHT/SIT	.235	.213	.185	.231	.118	.370	.697	.282
13C	SHOULDER-ELBOW L	.334	.294	.247	.259	.226	.356	.465	.405
14C	ELBOW-FINGERTIP	.335	.283	.207	.223	.203	.308	.356	.320
15C	KNEE HEIGHT/SIT	.363	.328	.270	.295	.252	.410	.484	.372
16C	POPLITEAL HEIGHT	.252	.212	.155	.172	.139	.261	.374	.263
17C	BUTTOCK-KNEE LGTH	.506	.480	.449	.438	.456	.637	.579	.520
18C	BUST DEPTH	.709	.767	.904	.768	.732	.650	.550	.685
19C	WAIST DEPTH	.669	.697	.738	.716	.895	.627	.486	.652
20C	CHEST BREADTH	.828	.854	.858	.833	.754	.679	.595	.729
21C	WAIST BREADTH	.695	.706	.724	.723	.926	.664	.535	.669
22C	HIP BREADTH	.590	.590	.586	.580	.571	.906	.689	.590
23C	SHOULDER BREADTH	.936	.855	.771	.762	.705	.709	.620	.737
24C	NECK CIRCUMFERENCE	.652	.614	.563	.569	.588	.522	.509	.608
25C	SHOULDER CIRC		.915	.823	.801	.746	.718	.607	.780
26C	CHEST CIRC AT SCYE	.915		.881	.850	.769	.713	.616	.807
27C	BUST CIRCUMFERENCE	.823	.881		.862	.793	.707	.616	.758
28C	CHEST C BELOW BUST	.801	.850	.862		.778	.691	.621	.740
29C	WAIST CIRC	.746	.769	.793	.778		.700	.558	.719
30C	HIP CIRCUMFERENCE	.718	.713	.707	.691	.700		.760	.704
31C	VERTICAL TRUNK CIR	.607	.616	.616	.621	.558	.760		.670
32C	ARM CIRC AT SCYE	.780	.807	.758	.740	.719	.704	.670	
33C	BICEPS CIRC, FLXD	.777	.780	.718	.698	.693	.725	.578	.788
34C	ELBOW CIRC, FLXD	.596	.579	.487	.512	.494	.522	.534	.645
35C	FOREARM CIRC, FLXD	.736	.715	.634	.643	.627	.645	.579	.763

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		25C	26C	27C	28C	29C	30C	31C	32C
36C	WRIST CIRC	.595	.555	.479	.494	.442	.511	.545	.600
37C	UPPER THIGH CIRC	.715	.705	.684	.670	.692	.907	.665	.697
38C	KNEE CIRCUMFERENCE	.611	.602	.570	.589	.561	.783	.646	.631
39C	CALF CIRCUMFERENCE	.585	.558	.533	.555	.519	.718	.577	.573
40C	ANKLE CIRC	.449	.416	.397	.436	.369	.563	.547	.461
41C	SHOULDER LENGTH	.323	.222	.117	.148	.071	.192	.201	.072
42C	INTERSCYE BACK	.646	.565	.467	.468	.431	.385	.326	.363
43C	INTERSCYE FRONT	.638	.581	.500	.499	.417	.477	.464	.440
44C	BACK ARC, BUST	.769	.805	.849	.825	.735	.663	.564	.679
45C	BACK ARC, WAIST	.723	.750	.776	.767	.936	.674	.537	.693
46C	BACK ARC, HIP	.647	.633	.623	.611	.636	.865	.662	.625
47C	WAIST BACK	.203	.172	.153	.186	.321	.242	.475	.242
48C	WAIST FRONT	.316	.323	.343	.345	.504	.321	.486	.364
49C	NECK-BUSTPOINT LGT	.520	.552	.627	.485	.464	.511	.471	.535
50C	AXILLA-WAIST LEVEL	.076	.068	.083	.115	.301	.123	.342	.120
51C	SLEEVE INSEAM	.244	.175	.120	.130	.128	.236	.288	.208
52C	SLEEVE OUTSEAM	.307	.255	.200	.210	.186	.305	.394	.347
53C	CROTCH LENGTH	.476	.485	.465	.462	.262	.653	.712	.497
54C	HEAD CIRCUMFERENCE	.352	.327	.275	.273	.245	.324	.305	.289
55C	HEAD BREADTH	.302	.289	.276	.281	.242	.254	.248	.288
56C	HEAD LENGTH	.246	.224	.176	.184	.145	.237	.268	.193
57C	PALM LENGTH	.260	.207	.141	.169	.127	.224	.296	.223
58C	HAND BREADTH	.455	.416	.337	.365	.320	.369	.421	.459
59C	HAND CIRCUMFERENCE	.476	.439	.360	.389	.338	.386	.450	.480
60C	HAND LENGTH	.302	.247	.171	.196	.167	.267	.328	.278
61C	INSTEP LENGTH	.369	.327	.275	.277	.271	.384	.415	.347
62C	FOOT LENGTH	.371	.327	.266	.282	.258	.388	.439	.344
63C	HEEL-ANKLE CIRC	.491	.446	.376	.412	.364	.517	.513	.465
64C	FOOT BREADTH	.396	.359	.314	.355	.290	.387	.428	.387
65C	HEEL BREADTH	.408	.397	.341	.340	.333	.393	.318	.377
66C	FOOT CIRCUMFERENCE	.482	.424	.380	.403	.350	.477	.506	.463
67C	INSTEP CIRC	.481	.441	.364	.403	.369	.449	.429	.464
68C	ANKLE HEIGHT	.156	.117	.067	.090	.078	.067	.198	.147
69C	SPHYRION HEIGHT	.166	.140	.119	.161	.093	.185	.327	.184
70C	AGE	.138	.199	.213	.196	.223	.208	.209	.190

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		33C	34C	35C	36C	37C	38C	39C	40C
1C	WEIGHT	.817	.662	.780	.652	.883	.820	.777	.639
2C	STATURE	.207	.468	.334	.464	.287	.419	.304	.391
3C	SHOULDER HEIGHT	.250	.488	.360	.461	.325	.444	.318	.384
4C	AXILLA HEIGHT	.200	.460	.319	.435	.285	.410	.280	.358
5C	BUSTPOINT HEIGHT	.158	.433	.287	.412	.238	.365	.240	.317
6C	WAIST HEIGHT	.137	.401	.257	.388	.225	.360	.235	.315
7C	CROTCH HEIGHT	.120	.409	.254	.365	.184	.313	.176	.231
8C	BUTTOCK HEIGHT	.214	.451	.320	.391	.287	.368	.238	.268
9C	KNEECAP HEIGHT	.140	.424	.281	.386	.202	.319	.198	.263
10C	CALF HEIGHT	.179	.409	.293	.362	.250	.371	.190	.193
11C	SITTING HEIGHT	.167	.312	.242	.367	.243	.336	.296	.392
12C	EYE HEIGHT/SIT	.155	.296	.230	.349	.225	.321	.284	.387
13C	SHOULDER-ELBOW L	.171	.453	.318	.417	.247	.378	.248	.287
14C	ELBOW-FINGERTIP	.210	.482	.366	.482	.230	.367	.233	.282
15C	KNEE HEIGHT/SIT	.252	.489	.385	.469	.341	.472	.341	.375
16C	POPLITEAL HEIGHT	.112	.412	.269	.386	.180	.307	.187	.255
17C	BUTTOCK-KNEE LGTH	.452	.538	.503	.485	.570	.596	.453	.400
18C	BUST DEPTH	.664	.421	.559	.399	.635	.524	.494	.347
19C	WAIST DEPTH	.638	.426	.553	.386	.625	.499	.458	.310
20C	CHEST BREADTH	.670	.487	.614	.473	.658	.554	.523	.408
21C	WAIST BREADTH	.638	.465	.581	.422	.648	.538	.497	.373
22C	HIP BREADTH	.625	.435	.539	.438	.827	.731	.665	.513
23C	SHOULDER BREADTH	.717	.555	.685	.560	.691	.602	.574	.453
24C	NECK CIRCUMFERENCE	.556	.533	.623	.550	.526	.451	.454	.395
25C	SHOULDER CIRC	.777	.596	.736	.595	.715	.611	.585	.449
26C	CHEST CIRC AT SCYE	.780	.579	.715	.555	.705	.602	.558	.416
27C	BUST CIRCUMFERENCE	.718	.487	.634	.479	.684	.570	.533	.397
28C	CHEST C BELOW BUST	.698	.512	.643	.494	.670	.589	.555	.436
29C	WAIST CIRC	.693	.494	.627	.442	.692	.561	.519	.369
30C	HIP CIRCUMFERENCE	.725	.522	.645	.511	.907	.783	.718	.563
31C	VERTICAL TRUNK CIR	.578	.534	.579	.545	.665	.646	.577	.547
32C	ARM CIRC AT SCYE	.788	.645	.763	.600	.697	.631	.573	.461
33C	BICEPS CIRC, FLXD		.662	.832	.583	.789	.684	.692	.516
34C	ELBOW CIRC, FLXD	.662		.832	.657	.521	.563	.513	.484
35C	FOREARM CIRC, FLXD	.832	.832		.726	.687	.673	.672	.571

TABLE   2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		33C	34C	35C	36C	37C	38C	39C	40C
36C	WRIST CIRC	.583	.657	.726		.489	.604	.560	.634
37C	UPPER THIGH CIRC	.789	.521	.687	.489		.776	.767	.559
38C	KNEE CIRCUMFERENCE	.684	.563	.673	.604	.776		.790	.690
39C	CALF CIRCUMFERENCE	.692	.513	.672	.560	.767	.790		.789
40C	ANKLE CIRC	.516	.484	.571	.634	.559	.690	.789	
41C	SHOULDER LENGTH	.122	.222	.195	.275	.132	.224	.169	.192
42C	INTERSCYE BACK	.377	.331	.393	.372	.352	.326	.287	.240
43C	INTERSCYE FRONT	.427	.401	.466	.456	.424	.424	.390	.332
44C	BACK ARC, BUST	.653	.447	.585	.444	.640	.546	.522	.413
45C	BACK ARC, WAIST	.680	.478	.609	.437	.660	.548	.508	.370
46C	BACK ARC, HIP	.669	.471	.580	.447	.798	.676	.633	.480
47C	WAIST BACK	.145	.284	.229	.268	.163	.213	.194	.230
48C	WAIST FRONT	.289	.284	.302	.277	.271	.273	.250	.227
49C	NECK-BUSTPOINT LGT	.485	.335	.419	.351	.462	.436	.398	.338
50C	AXILLA-WAIST LEVEL	.079	.131	.093	.112	.060	.086	.080	.123
51C	SLEEVE INSEAM	.089	.383	.233	.358	.154	.278	.156	.194
52C	SLEEVE OUTSEAM	.157	.415	.282	.395	.217	.346	.210	.244
53C	CROTCH LENGTH	.475	.362	.427	.402	.593	.558	.489	.450
54C	HEAD CIRCUMFERENCE	.277	.330	.347	.346	.303	.328	.287	.264
55C	HEAD BREADTH	.240	.231	.294	.278	.251	.247	.221	.210
56C	HEAD LENGTH	.194	.283	.262	.287	.215	.257	.244	.252
57C	PALM LENGTH	.150	.381	.291	.438	.151	.297	.191	.257
58C	HAND BREADTH	.428	.562	.584	.697	.357	.422	.425	.488
59C	HAND CIRCUMFERENCE	.447	.578	.618	.739	.374	.449	.447	.511
60C	HAND LENGTH	.194	.440	.357	.505	.201	.338	.237	.306
61C	INSTEP LENGTH	.283	.467	.411	.507	.328	.432	.368	.448
62C	FOOT LENGTH	.272	.491	.416	.536	.316	.459	.366	.469
63C	HEEL-ANKLE CIRC	.432	.565	.560	.660	.485	.624	.549	.649
64C	FOOT BREADTH	.339	.429	.445	.521	.366	.425	.460	.529
65C	HEEL BREADTH	.402	.422	.483	.477	.413	.478	.410	.402
66C	FOOT CIRCUMFERENCE	.432	.525	.544	.631	.456	.530	.557	.634
67C	INSTEP CIRC	.445	.541	.570	.653	.467	.528	.554	.607
68C	ANKLE HEIGHT	.009	.238	.123	.229	.005	.060	-029	-034
69C	SPHYRION HEIGHT	.092	.239	.197	.309	.147	.179	.229	.275
70C	AGE	.178	.083	.113	.051	.119	.168	.028	-024

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		41C	42C	43C	44C	45C	46C	47C	48C
1C	WEIGHT	.247	.479	.567	.749	.761	.791	.313	.399
2C	STATURE	.373	.276	.387	.216	.199	.321	.520	.368
3C	SHOULDER HEIGHT	.274	.235	.365	.259	.252	.357	.498	.372
4C	AXILLA HEIGHT	.302	.236	.352	.215	.205	.320	.487	.348
5C	BUSTPOINT HEIGHT	.310	.203	.344	.162	.146	.270	.435	.320
6C	WAIST HEIGHT	.330	.227	.331	.158	.065	.249	.269	.039
7C	CROTCH HEIGHT	.319	.230	.314	.133	.127	.189	.322	.187
8C	BUTTOCK HEIGHT	.293	.249	.342	.205	.218	.272	.313	.234
9C	KNEECAP HEIGHT	.328	.240	.335	.164	.162	.228	.339	.214
10C	CALF HEIGHT	.276	.224	.303	.144	.170	.244	.276	.152
11C	SITTING HEIGHT	.298	.211	.278	.182	.135	.288	.535	.405
12C	EYE HEIGHT/SIT	.287	.200	.266	.178	.131	.275	.519	.403
13C	SHOULDER-ELBOW L	.298	.256	.362	.220	.204	.280	.365	.255
14C	ELBOW-FINGERTIP	.362	.284	.405	.194	.178	.259	.298	.183
15C	KNEE HEIGHT/SIT	.368	.311	.404	.242	.228	.301	.344	.226
16C	POPLITEAL HEIGHT	.357	.256	.336	.132	.120	.181	.331	.188
17C	BUTTOCK-KNEE LGTH	.299	.352	.432	.396	.419	.560	.298	.262
18C	BUST DEPTH	.064	.376	.403	.793	.717	.581	.127	.323
19C	WAIST DEPTH	.026	.357	.369	.671	.839	.579	.198	.409
20C	CHEST BREADTH	.184	.517	.542	.807	.737	.597	.175	.335
21C	WAIST BREADTH	.085	.420	.401	.697	.886	.592	.371	.529
22C	HIP BREADTH	.188	.296	.424	.545	.553	.782	.221	.273
23C	SHOULDER BREADTH	.362	.618	.688	.735	.684	.628	.212	.319
24C	NECK CIRCUMFERENCE	.095	.408	.457	.515	.566	.481	.244	.231
25C	SHOULDER CIRC	.323	.646	.638	.769	.723	.647	.203	.316
26C	CHEST CIRC AT SCYE	.222	.565	.581	.805	.750	.633	.172	.323
27C	BUST CIRCUMFERENCE	.117	.467	.500	.849	.776	.623	.153	.343
28C	CHEST C BELOW BUST	.148	.468	.499	.825	.767	.611	.186	.345
29C	WAIST CIRC	.071	.431	.417	.735	.936	.636	.321	.504
30C	HIP CIRCUMFERENCE	.192	.385	.477	.663	.674	.865	.242	.321
31C	VERTICAL TRUNK CIR	.201	.326	.464	.564	.537	.662	.475	.486
32C	ARM CIRC AT SCYE	.072	.363	.440	.679	.693	.625	.242	.364
33C	BICEPS CIRC, FLXD	.122	.377	.427	.653	.680	.669	.145	.289
34C	ELBOW CIRC, FLXD	.222	.331	.401	.447	.478	.471	.284	.284
35C	FOREARM CIRC, FLXD	.195	.393	.466	.585	.609	.580	.229	.302

TABLE   2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		41C	42C	43C	44C	45C	46C	47C	48C
36C	WRIST CIRC	.275	.372	.456	.444	.437	.447	.268	.277
37C	UPPER THIGH CIRC	.132	.352	.424	.640	.660	.798	.163	.271
38C	KNEE CIRCUMFERENCE	.224	.326	.424	.546	.548	.676	.213	.273
39C	CALF CIRCUMFERENCE	.169	.287	.390	.522	.508	.633	.194	.250
40C	ANKLE CIRC	.192	.240	.332	.413	.370	.480	.230	.227
41C	SHOULDER LENGTH		.475	.525	.128	.066	.105	.230	.169
42C	INTERSCYE BACK	.475		.378	.515	.439	.323	.220	.184
43C	INTERSCYE FRONT	.525	.378		.440	.394	.402	.170	.254
44C	BACK ARC, BUST	.128	.515	.440		.760	.601	.172	.310
45C	BACK ARC, WAIST	.066	.439	.394	.760		.639	.311	.465
46C	BACK ARC, HIP	.105	.323	.402	.601	.639		.211	.296
47C	WAIST BACK	.230	.220	.170	.172	.311	.211		.599
48C	WAIST FRONT	.169	.184	.254	.310	.465	.296	.599	
49C	NECK-BUSTPOINT LGT	.234	.338	.339	.503	.462	.424	.154	.304
50C	AXILLA-WAIST LEVEL	-.002	.034	.056	.105	.274	.159	.657	.698
51C	SLEEVE INSEAM	.366	.269	.316	.110	.104	.177	.297	.155
52C	SLEEVE OUTSEAM	.291	.231	.365	.175	.160	.239	.312	.212
53C	CROTCH LENGTH	.162	.247	.339	.401	.265	.549	-.042	-.095
54C	HEAD CIRCUMFERENCE	.137	.253	.301	.248	.227	.295	.156	.134
55C	HEAD BREADTH	.044	.196	.215	.249	.245	.227	.084	.087
56C	HEAD LENGTH	.145	.201	.230	.169	.129	.223	.161	.145
57C	PALM LENGTH	.307	.235	.346	.127	.104	.184	.242	.133
58C	HAND BREADTH	.255	.305	.378	.333	.312	.330	.267	.223
59C	HAND CIRCUMFERENCE	.273	.338	.398	.355	.332	.334	.279	.238
60C	HAND LENGTH	.322	.246	.377	.159	.140	.214	.277	.181
61C	INSTEP LENGTH	.295	.299	.377	.260	.243	.300	.259	.179
62C	FOOT LENGTH	.348	.296	.403	.252	.231	.308	.308	.216
63C	HEEL-ANKLE CIRC	.332	.333	.449	.377	.349	.434	.289	.234
64C	FOOT BREADTH	.223	.266	.375	.302	.274	.324	.238	.189
65C	HEEL BREADTH	.221	.244	.383	.314	.321	.361	.126	.131
66C	FOOT CIRCUMFERENCE	.256	.313	.418	.368	.330	.403	.253	.232
67C	INSTEP CIRC	.237	.308	.395	.352	.357	.386	.227	.193
68C	ANKLE HEIGHT	.193	.151	.180	.069	.077	.071	.232	.173
69C	SPHYRION HEIGHT	.151	.163	.158	.084	.094	.101	.269	.152
70C	AGE	.008	.079	.151	.169	.215	.245	.053	.135

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		49C	50C	51C	52C	53C	54C	55C	56C
1C	WEIGHT	.569	.150	.357	.433	.636	.409	.317	.317
2C	STATURE	.276	.284	.746	.782	.424	.364	.154	.370
3C	SHOULDER HEIGHT	.272	.309	.736	.799	.423	.333	.149	.336
4C	AXILLA HEIGHT	.228	.310	.763	.789	.390	.334	.124	.343
5C	BUSTPOINT HEIGHT	.043	.274	.767	.789	.353	.317	.095	.327
6C	WAIST HEIGHT	.202	.046	.765	.781	.486	.319	.115	.314
7C	CROTCH HEIGHT	.144	.139	.857	.847	.205	.324	.084	.320
8C	BUTTOCK HEIGHT	.175	.160	.825	.816	.240	.366	.117	.345
9C	KNEECAP HEIGHT	.175	.154	.806	.811	.248	.324	.099	.319
10C	CALF HEIGHT	.153	.097	.759	.761	.225	.364	.137	.319
11C	SITTING HEIGHT	.283	.330	.327	.389	.479	.236	.155	.261
12C	EYE HEIGHT/SIT	.281	.328	.305	.367	.462	.180	.112	.220
13C	SHOULDER-ELBOW L	.223	.163	.864	.922	.281	.311	.136	.297
14C	ELBOW-FINGERTIP	.161	.114	.866	.855	.208	.427	.165	.382
15C	KNEE HEIGHT/SIT	.240	.100	.808	.831	.350	.386	.160	.362
16C	POPLITEAL HEIGHT	.155	.113	.825	.832	.235	.335	.113	.326
17C	BUTTOCK-KNEE LGTH	.339	.119	.722	.750	.448	.396	.186	.342
18C	BUST DEPTH	.616	.063	.075	.135	.403	.229	.246	.135
19C	WAIST DEPTH	.412	.196	.071	.121	.288	.202	.201	.105
20C	CHEST BREADTH	.546	.101	.135	.229	.449	.287	.276	.210
21C	WAIST BREADTH	.453	.368	.155	.210	.194	.255	.253	.160
22C	HIP BREADTH	.451	.086	.206	.283	.611	.264	.224	.197
23C	SHOULDER BREADTH	.499	.092	.261	.329	.478	.337	.278	.246
24C	NECK CIRCUMFERENCE	.354	.134	.262	.282	.351	.398	.307	.268
25C	SHOULDER CIRC	.520	.076	.244	.307	.476	.352	.302	.246
26C	CHEST CIRC AT SCYE	.552	.068	.175	.265	.485	.327	.289	.224
27C	BUST CIRCUMFERENCE	.627	.083	.120	.200	.465	.275	.276	.176
28C	CHEST C BELOW BUST	.485	.115	.130	.210	.462	.273	.281	.184
29C	WAIST CIRC	.464	.301	.128	.186	.262	.245	.242	.145
30C	HIP CIRCUMFERENCE	.511	.123	.236	.305	.653	.324	.254	.237
31C	VERTICAL TRUNK CIR	.471	.342	.288	.394	.712	.305	.248	.268
32C	ARM CIRC AT SCYE	.535	.120	.208	.347	.497	.289	.288	.193
33C	BICEPS CIRC, FLXD	.485	.079	.089	.157	.475	.277	.240	.194
34C	ELBOW CIRC, FLXD	.335	.131	.383	.415	.362	.330	.231	.283
35C	FOREARM CIRC, FLXD	.419	.093	.233	.282	.427	.347	.294	.262

TABLE 2 CONTINUED

CORRELATIONS: CORE MEASUREMENTS (N=1330)

		49C	50C	51C	52C	53C	54C	55C	56C
36C	WRIST CIRC	.351	.112	.358	.395	.402	.346	.278	.287
37C	UPPER THIGH CIRC	.462	.060	.154	.217	.593	.303	.251	.215
38C	KNEE CIRCUMFERENCE	.436	.086	.278	.346	.558	.328	.247	.257
39C	CALF CIRCUMFERENCE	.398	.080	.156	.210	.489	.287	.221	.244
40C	ANKLE CIRC	.338	.123	.194	.244	.450	.264	.210	.252
41C	SHOULDER LENGTH	.234	−062	.366	.291	.162	.137	.044	.145
42C	INTERSCYE BACK	.338	.034	.269	.231	.247	.253	.196	.201
43C	INTERSCYE FRONT	.339	.056	.316	.365	.339	.301	.215	.230
44C	BACK ARC, BUST	.503	.105	.110	.175	.401	.248	.249	.169
45C	BACK ARC, WAIST	.462	.274	.104	.160	.265	.227	.245	.129
46C	BACK ARC, HIP	.424	.159	.177	.239	.549	.295	.227	.223
47C	WAIST BACK	.154	.657	.297	.312	−042	.156	.084	.161
48C	WAIST FRONT	.304	.698	.155	.212	−095	.134	.087	.145
49C	NECK-BUSTPOINT LGT		.021	.103	.181	.399	.192	.232	.135
50C	AXILLA-WAIST LEVEL	.021		.108	.134	−251	.077	.007	.097
51C	SLEEVE INSEAM	.103	.108		.898	.159	.343	.102	.316
52C	SLEEVE OUTSEAM	.181	.134	.898		.241	.341	.135	.317
53C	CROTCH LENGTH	.399	−251	.159	.241		.225	.211	.183
54C	HEAD CIRCUMFERENCE	.192	.077	.343	.341	.225		.548	.796
55C	HEAD BREADTH	.232	.007	.102	.135	.211	.548		.161
56C	HEAD LENGTH	.135	.097	.316	.317	.183	.796	.161	
57C	PALM LENGTH	.111	.077	.645	.636	.186	.379	.149	.333
58C	HAND BREADTH	.238	.135	.413	.424	.267	.396	.286	.326
59C	HAND CIRCUMFERENCE	.262	.122	.405	.428	.292	.382	.295	.314
60C	HAND LENGTH	.132	.110	.707	.704	.193	.412	.185	.355
61C	INSTEP LENGTH	.233	.099	.623	.624	.298	.430	.254	.352
62C	FOOT LENGTH	.230	.129	.674	.675	.299	.425	.222	.370
63C	HEEL-ANKLE CIRC	.303	.122	.557	.577	.387	.447	.241	.388
64C	FOOT BREADTH	.233	.083	.298	.349	.329	.352	.246	.289
65C	HEEL BREADTH	.240	.018	.350	.377	.254	.398	.249	.303
66C	FOOT CIRCUMFERENCE	.286	.118	.350	.386	.384	.370	.248	.309
67C	INSTEP CIRC	.263	.075	.430	.446	.332	.429	.283	.334
68C	ANKLE HEIGHT	.072	.155	.484	.455	.059	.196	.057	.200
69C	SPHYRION HEIGHT	.138	.050	.205	.236	.246	.109	.063	.148
70C	AGE	.156	.085	−011	.043	.133	.089	.193	.016

TABLE   2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		57C	58C	59C	60C	61C	62C	63C	64C
1C	WEIGHT	.340	.508	.534	.400	.508	.517	.642	.493
2C	STATURE	.585	.433	.448	.634	.629	.693	.616	.413
3C	SHOULDER HEIGHT	.574	.432	.445	.629	.618	.681	.618	.406
4C	AXILLA HEIGHT	.585	.417	.423	.637	.617	.684	.610	.390
5C	BUSTPOINT HEIGHT	.590	.409	.411	.642	.604	.672	.591	.373
6C	WAIST HEIGHT	.580	.393	.395	.625	.612	.667	.593	.366
7C	CROTCH HEIGHT	.629	.402	.396	.693	.646	.706	.599	.341
8C	BUTTOCK HEIGHT	.610	.419	.411	.680	.650	.707	.636	.332
9C	KNEECAP HEIGHT	.632	.419	.426	.697	.641	.713	.627	.372
10C	CALF HEIGHT	.605	.406	.401	.671	.609	.667	.588	.328
11C	SITTING HEIGHT	.304	.265	.293	.305	.336	.385	.350	.301
12C	EYE HEIGHT/SIT	.279	.239	.267	.277	.312	.357	.331	.280
13C	SHOULDER-ELBOW L	.572	.428	.430	.639	.594	.645	.568	.354
14C	ELBOW-FINGERTIP	.787	.553	.547	.871	.732	.799	.680	.413
15C	KNEE HEIGHT/SIT	.647	.466	.486	.720	.685	.747	.694	.449
16C	POPLITEAL HEIGHT	.651	.414	.424	.717	.655	.721	.622	.386
17C	BUTTOCK-KNEE LGTH	.539	.465	.475	.603	.668	.689	.671	.421
18C	BUST DEPTH	.097	.288	.305	.120	.223	.216	.330	.260
19C	WAIST DEPTH	.082	.269	.287	.119	.208	.190	.307	.235
20C	CHEST BREADTH	.166	.337	.369	.199	.274	.274	.396	.343
21C	WAIST BREADTH	.140	.315	.331	.182	.277	.274	.365	.275
22C	HIP BREADTH	.196	.295	.314	.215	.336	.339	.428	.326
23C	SHOULDER BREADTH	.267	.435	.459	.310	.374	.377	.489	.397
24C	NECK CIRCUMFERENCE	.308	.474	.475	.356	.404	.382	.476	.405
25C	SHOULDER CIRC	.260	.455	.476	.302	.369	.371	.491	.396
26C	CHEST CIRC AT SCYE	.207	.416	.439	.247	.327	.327	.446	.359
27C	BUST CIRCUMFERENCE	.141	.337	.360	.171	.275	.266	.376	.314
28C	CHEST C BELOW BUST	.169	.365	.389	.196	.277	.282	.412	.355
29C	WAIST CIRC	.127	.320	.338	.167	.271	.258	.364	.290
30C	HIP CIRCUMFERENCE	.224	.369	.386	.267	.384	.388	.517	.387
31C	VERTICAL TRUNK CIR	.296	.421	.450	.328	.415	.439	.513	.428
32C	ARM CIRC AT SCYE	.223	.459	.480	.278	.347	.344	.465	.387
33C	BICEPS CIRC, FLXD	.150	.428	.447	.194	.283	.272	.432	.339
34C	ELBOW CIRC, FLXD	.381	.562	.578	.440	.467	.491	.505	.429
35C	FOREARM CIRC, FLXD	.291	.584	.618	.357	.411	.416	.560	.445

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		57C	58C	59C	60C	61C	62C	63C	64C
36C	WRIST CIRC	.438	.697	.739	.505	.507	.536	.660	.521
37C	UPPER THIGH CIRC	.151	.357	.374	.201	.328	.316	.485	.366
38C	KNEE CIRCUMFERENCE	.297	.422	.449	.338	.432	.459	.624	.425
39C	CALF CIRCUMFERENCE	.191	.425	.447	.237	.368	.366	.549	.460
40C	ANKLE CIRC	.257	.488	.511	.306	.448	.469	.649	.529
41C	SHOULDER LENGTH	.307	.255	.273	.322	.295	.348	.332	.223
42C	INTERSCYE BACK	.235	.305	.338	.246	.299	.296	.333	.266
43C	INTERSCYE FRONT	.346	.378	.398	.377	.377	.403	.449	.375
44C	BACK ARC, BUST	.127	.333	.355	.159	.260	.252	.377	.302
45C	BACK ARC, WAIST	.104	.312	.332	.140	.243	.231	.349	.274
46C	BACK ARC, HIP	.184	.330	.334	.214	.300	.308	.434	.324
47C	WAIST BACK	.242	.267	.279	.277	.259	.308	.289	.238
48C	WAIST FRONT	.133	.223	.238	.181	.179	.216	.234	.189
49C	NECK-BUSTPOINT LGT	.111	.238	.262	.132	.233	.230	.303	.233
50C	AXILLA-WAIST LEVEL	.077	.135	.122	.110	.099	.129	.122	.083
51C	SLEEVE INSEAM	.645	.413	.405	.707	.623	.674	.557	.298
52C	SLEEVE OUTSEAM	.636	.424	.428	.704	.624	.675	.577	.349
53C	CROTCH LENGTH	.186	.267	.292	.193	.298	.299	.387	.329
54C	HEAD CIRCUMFERENCE	.379	.396	.382	.412	.430	.425	.447	.352
55C	HEAD BREADTH	.149	.286	.295	.185	.254	.222	.241	.246
56C	HEAD LENGTH	.333	.326	.314	.355	.352	.370	.388	.289
57C	PALM LENGTH		.483	.473	.908	.671	.735	.607	.407
58C	HAND BREADTH	.483		.933	.602	.556	.582	.648	.613
59C	HAND CIRCUMFERENCE	.473	.933		.592	.557	.575	.654	.608
60C	HAND LENGTH	.908	.602	.592		.735	.815	.681	.478
61C	INSTEP LENGTH	.671	.556	.557	.735		.926	.748	.480
62C	FOOT LENGTH	.735	.582	.575	.815	.926		.801	.531
63C	HEEL-ANKLE CIRC	.607	.648	.654	.681	.748	.801		.608
64C	FOOT BREADTH	.407	.613	.608	.478	.480	.531	.608	
65C	HEEL BREADTH	.465	.515	.514	.499	.523	.539	.718	.503
66C	FOOT CIRCUMFERENCE	.423	.672	.682	.506	.552	.592	.732	.847
67C	INSTEP CIRC	.492	.697	.700	.580	.644	.655	.804	.697
68C	ANKLE HEIGHT	.429	.307	.305	.474	.405	.449	.419	.245
69C	SPHYRION HEIGHT	.210	.275	.285	.242	.148	.213	.290	.277
70C	AGE	.044	.045	.047	.026	.063	.054	.052	-004

TABLE 2 CONTINUED
CORRELATIONS: CORE MEASUREMENTS (N=1330)

		65C	66C	67C	68C	69C	70C
1C	WEIGHT	.499	.587	.592	.171	.239	.181
2C	STATURE	.306	.472	.462	.505	.402	.057
3C	SHOULDER HEIGHT	.320	.465	.468	.506	.386	.086
4C	AXILLA HEIGHT	.307	.451	.450	.516	.371	.056
5C	BUSTPOINT HEIGHT	.304	.428	.441	.522	.341	.049
6C	WAIST HEIGHT	.301	.423	.443	.499	.339	.016
7C	CROTCH HEIGHT	.340	.395	.461	.564	.275	-018
8C	BUTTOCK HEIGHT	.375	.410	.496	.546	.252	.026
9C	KNEECAP HEIGHT	.357	.420	.485	.589	.337	.054
10C	CALF HEIGHT	.405	.360	.486	.528	.314	.031
11C	SITTING HEIGHT	.066	.333	.232	.256	.407	.075
12C	EYE HEIGHT/SIT	.047	.313	.209	.240	.394	.098
13C	SHOULDER-ELBOW L	.335	.404	.436	.456	.269	.070
14C	ELBOW-FINGERTIP	.487	.456	.554	.504	.217	.047
15C	KNEE HEIGHT/SIT	.440	.501	.564	.504	.378	.041
16C	POPLITEAL HEIGHT	.381	.431	.488	.552	.350	.001
17C	BUTTOCK-KNEE LGTH	.502	.493	.545	.366	.198	.118
18C	BUST DEPTH	.314	.333	.323	.068	.063	.238
19C	WAIST DEPTH	.304	.296	.325	.061	.046	.243
20C	CHEST BREADTH	.344	.390	.393	.085	.167	.168
21C	WAIST BREADTH	.297	.335	.353	.097	.106	.213
22C	HIP BREADTH	.332	.388	.356	-012	.218	.212
23C	SHOULDER BREADTH	.396	.475	.465	.163	.193	.133
24C	NECK CIRCUMFERENCE	.368	.464	.503	.225	.166	.068
25C	SHOULDER CIRC	.408	.482	.481	.156	.166	.138
26C	CHEST CIRC AT SCYE	.397	.424	.441	.117	.140	.199
27C	BUST CIRCUMFERENCE	.341	.380	.364	.067	.119	.213
28C	CHEST C BELOW BUST	.340	.403	.403	.090	.161	.196
29C	WAIST CIRC	.333	.350	.369	.078	.093	.223
30C	HIP CIRCUMFERENCE	.393	.477	.449	.067	.185	.208
31C	VERTICAL TRUNK CIR	.318	.506	.429	.198	.327	.209
32C	ARM CIRC AT SCYE	.377	.463	.464	.147	.184	.190
33C	BICEPS CIRC, FLXD	.402	.432	.445	.009	.092	.178
34C	ELBOW CIRC, FLXD	.422	.525	.541	.238	.239	.083
35C	FOREARM CIRC, FLXD	.483	.544	.570	.123	.197	.113

TABLE 2 CONTINUED

CORRELATIONS: CORE MEASUREMENTS (N=1330)

|		65C	66C	67C	68C	69C	70C
36C	WRIST CIRC	.477	.631	.653	.229	.309	.051
37C	UPPER THIGH CIRC	.413	.456	.467	.005	.147	.119
38C	KNEE CIRCUMFERENCE	.478	.530	.528	.060	.179	.168
39C	CALF CIRCUMFERENCE	.410	.557	.554	-029	.229	.028
40C	ANKLE CIRC	.402	.634	.607	-034	.275	-024
41C	SHOULDER LENGTH	.221	.256	.237	.193	.151	.008
42C	INTERSCYE BACK	.244	.313	.308	.151	.163	.079
43C	INTERSCYE FRONT	.383	.418	.395	.180	.158	.151
44C	BACK ARC, BUST	.314	.368	.352	.069	.084	.169
45C	BACK ARC, WAIST	.321	.330	.357	.077	.094	.215
46C	BACK ARC, HIP	.361	.403	.386	.071	.101	.245
47C	WAIST BACK	.126	.250	.227	.232	.269	.053
48C	WAIST FRONT	.131	.232	.193	.173	.152	.135
49C	NECK-BUSTPOINT LGT	.240	.286	.263	.072	.138	.156
50C	AXILLA-WAIST LEVEL	.018	.118	.075	.155	.050	.085
51C	SLEEVE INSEAM	.350	.350	.430	.484	.205	-011
52C	SLEEVE OUTSEAM	.377	.386	.446	.455	.236	.043
53C	CROTCH LENGTH	.254	.384	.332	.059	.240	.133
54C	HEAD CIRCUMFERENCE	.398	.370	.429	.196	.109	.089
55C	HEAD BREADTH	.249	.248	.283	.057	.063	.193
56C	HEAD LENGTH	.303	.309	.334	.200	.148	.016
57C	PALM LENGTH	.465	.423	.492	.429	.210	.044
58C	HAND BREADTH	.515	.672	.697	.307	.275	.045
59C	HAND CIRCUMFERENCE	.514	.682	.700	.305	.285	.047
60C	HAND LENGTH	.499	.506	.580	.474	.242	.026
61C	INSTEP LENGTH	.523	.552	.644	.405	.148	.063
62C	FOOT LENGTH	.539	.592	.655	.449	.213	.054
63C	HEEL-ANKLE CIRC	.718	.732	.804	.419	.290	.052
64C	FOOT BREADTH	.503	.847	.697	.245	.277	-004
65C	HEEL BREADTH		.556	.669	.221	.082	.126
66C	FOOT CIRCUMFERENCE	.556		.780	.280	.290	-027
67C	INSTEP CIRC	.669	.780		.362	.328	-003
68C	ANKLE HEIGHT	.221	.280	.362		.225	.042
69C	SPHYRION HEIGHT	.082	.290	.328	.225		-073
70C	AGE	.126	-027	-003	.042	-073	

THE VISUAL INDEX
TRADITIONAL SERIES

Figure 2. The visual index: traditional series.

44
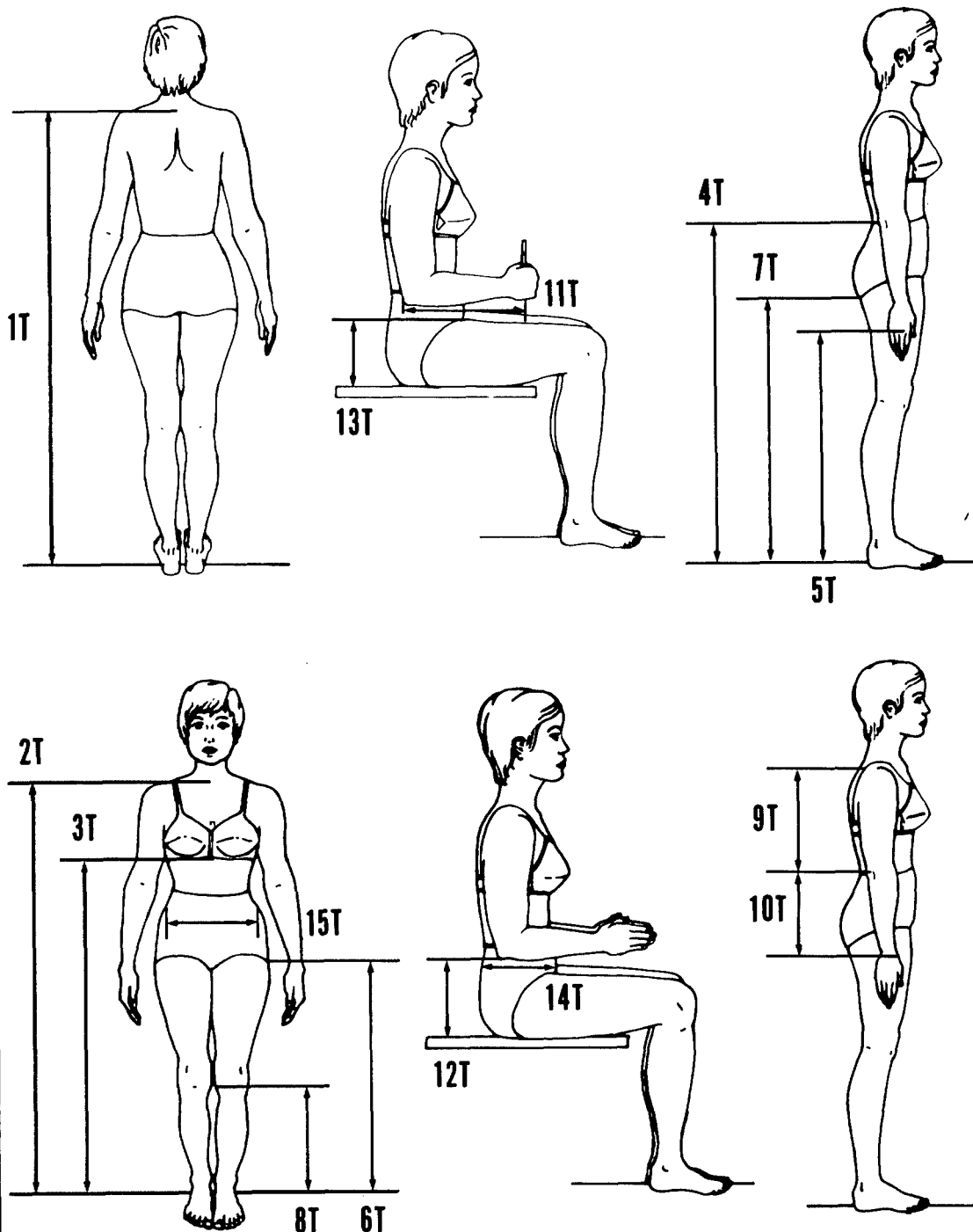
1T   CERVICALE HEIGHT: vertical distance from floor to cervicale; tip
     of the spinous process of the 7th cervical vertebra.

2T   SUPRASTERNALE HEIGHT: vertical distance from floor to suprasternale;
     lowest point of the notch in the upper edge of the breastbone.

3T   SUBSTERNALE HEIGHT: vertical distance from floor to substernale;
     midpoint of the lower edge of the breastbone.

4T   ELBOW (RADIALE) HEIGHT: vertical distance from floor to radiale;
     the depression between the humerus and the radius.

5T   KNUCKLE HEIGHT: vertical distance from floor to the largest knuckle
     where the first phalanx of the middle finger joins the palm.

6T   HIP (TROCHANTERIC) HEIGHT: vertical distance from floor to tro-
     chanterion; tip of the lateral protrusion of the proximal end of
     the thigh bone.

7T   GLUTEAL FURROW HEIGHT: vertical distance from floor to the furrow
     where the gluteal curve intersects the back of the thigh.

8T   TIBIALE HEIGHT: vertical distance from floor to the proximal
     medial margin of the shin bone.

9T   ACROMION-RADIALE LENGTH: the distance, parallel to the axis of the
     upper arm, from the lateral tip of the acromion to the uppermost
     point of the radius.

10T RADIALE-STYLION LENGTH: the distance, parallel to the axis of the
     forearm, from the uppermost point of the radius to the most distal
     point of the styloid process of the radius.

11T ELBOW GRIP LENGTH: the distance parallel to the axis of the forearm
     from the tip of the elbow to the midpoint of the fist measured with
     the upper arm hanging relaxed, the forearm extended forward, and the
     hand grasping the fixed blade of a beam caliper.

12T ELBOW REST HEIGHT: vertical distance from sitting surface to the
     bottom of the elbow, measured with the upper arm hanging relaxed,
     the forearm extended horizontally.

13T THIGH CLEARANCE: vertical distance from sitting surface to the top
     of the thigh at its junction with the abdomen.

14T ABDOMINAL EXTENSION DEPTH/SITTING: anterior-posterior depth of the
     torso at the level of the most protruding point of the abdomen.

15T BISPINOUS BREADTH: horizontal distance between the anterior-superior
     iliac spines.

THE VISUAL INDEX
TRADITIONAL SERIES (CONT.)

16T
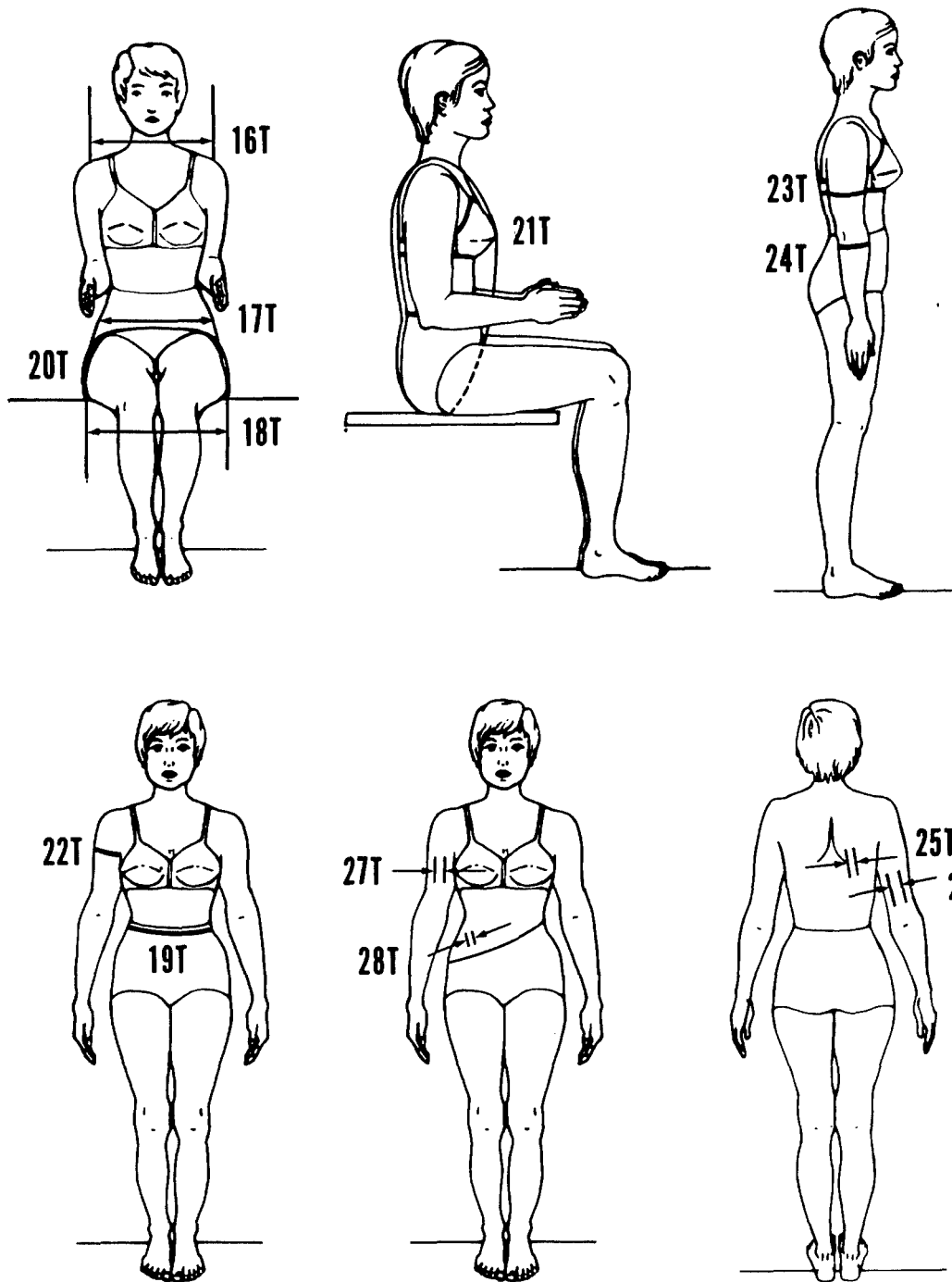17T
20T
18T

21T

23T
24T

22T
19T

27T
28T

25T
26T

Figure 2. The visual index: traditional series (continued).

16T BIACROMIAL BREADTH: horizontal distance between the lateral edges of the acromial processes of the shoulders.

17T ABDOMINAL EXTENSION BREADTH, SITTING: horizontal breadth of the trunk at the level of maximum protrusion of the abdomen.

18T THIGH-TO-THIGH BREADTH, SITTING: maximum horizontal distance across the thighs measured with subject sitting erect, her thighs parallel and completely supported by the sitting surface.

19T WAIST CIRCUMFERENCE (OMPHALION): horizontal circumference of the waist at the level of the midpoint of the navel.

20T HIP CIRCUMFERENCE, SITTING: circumference of the buttocks measured with tape drawn as far forward as possible under subject's buttocks and brought diagonally across her lap at the level of the thigh-trunk intersection.

21T VERTICAL TRUNK CIRCUMFERENCE, SITTING: torso circumference measured as subject sits with her torso erect and arms relaxed with tape passing between the legs, over the buttock, midshoulder and tip of the bra. Tape follows the posterior, but not the anterior, body contour.

22T AXILLARY ARM CIRCUMFERENCE: circumference of the upper arm at armpit level measured in a plane perpendicular to the long axis of the arm.

23T BICEPS CIRCUMFERENCE, RELAXED: circumference of the arm at biceps level measured in a plane perpendicular to the long axis of the upper arm.

24T FOREARM CIRCUMFERENCE, RELAXED: maximum circumference of the lower arm as measured in a plane perpendicular to its long axis.

25T SUBSCAPULAR SKINFOLD: thickness of a skinfold picked up just below the interior angle of scapula and parallel to tension lines of the skin.

26T TRICEPS SKINFOLD: thickness of a skinfold picked up on the back of the upper arm and parallel to its long axis at the level which, when elbow is flexed, is midway between acromion and tip of the elbow.

27T BICEPS SKINFOLD: thickness of a skinfold picked up parallel to the axis of the upper arm at biceps level.

28T SUPRAILIAC SKINFOLD: thickness of a skinfold picked up in the right midaxillary line at the level of the crest of the ilium and following the border of the crest.

TABLE 3A
SUMMARY STATISTICS AND SELECTED PERCENTILES
TRADITIONAL SERIES (N=255)

METRIC UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
1T CERVICALE HEIGHT	140.28	6.02	126.9	130.0	132.3	136.4	140.5	144.1	147.3	149.8	156.9
2T SUPRASTERNALE HT	132.62	5.65	120.7	123.4	125.3	128.8	132.6	136.3	139.7	142.0	147.2
3T SUBSTERNALE HEIGHT	113.92	4.97	103.4	105.8	107.5	110.6	113.9	117.2	120.2	122.2	127.0
4T ELBOW HEIGHT	102.56	4.80	92.9	94.9	96.4	99.1	102.4	105.8	108.9	110.7	114.1
5T KNUCKLE HEIGHT	70.99	3.97	61.9	64.6	66.0	68.3	70.9	73.7	76.1	77.5	79.5
6T TROCHANTERIC HT	85.91	4.43	77.1	78.7	80.1	82.7	85.8	88.9	91.5	93.2	96.6
7T GLUTEAL FURROW HT	74.13	4.06	65.6	67.9	69.2	71.4	73.9	76.6	79.3	81.0	84.6
8T TIBIALE HEIGHT	44.05	2.47	38.6	40.0	40.9	42.4	44.0	45.6	47.2	48.2	50.6
9T ACROMION-RADIALE	30.85	1.67	27.3	28.1	28.7	29.7	30.9	31.9	32.8	33.4	35.1
10T RADIALE-STYLION	24.37	1.47	21.2	22.1	22.6	23.3	24.3	25.3	26.4	27.0	27.9
11T ELBOW-CENTER GRIP	32.25	1.76	28.4	29.6	30.1	31.0	32.1	33.4	34.6	35.4	36.8
12T ELBOW REST HEIGHT	20.73	2.74	14.7	16.1	17.1	18.9	20.8	22.6	24.1	25.0	27.0
13T THIGH CLEARANCE HT	15.41	1.31	12.5	13.2	13.7	14.6	15.4	16.2	17.0	17.5	18.9
14T ABDOM-EXTEN DEPTH	21.91	2.59	17.7	18.4	19.0	20.1	21.5	23.2	25.3	26.9	31.1
15T BISPINOUS BREADTH	23.27	2.20	18.3	20.1	20.8	21.8	23.0	24.6	26.3	27.5	29.7
16T BIACROMIAL BREADTH	35.71	1.61	32.2	33.0	33.6	34.6	35.7	36.8	37.7	38.3	39.6
17T ABDOM-EXTEN BREDTH	29.98	2.99	23.9	25.6	26.4	27.8	29.7	31.9	34.0	35.4	37.9
18T THIGH-THIGH BRDTH	38.27	3.27	31.6	33.0	34.0	36.0	38.2	40.4	42.5	43.9	47.1
19T WAIST C, OMPHALION	76.21	7.89	62.6	65.5	67.2	70.4	75.1	80.9	87.1	90.9	98.0
2JT HIP CIRC, SITTING	98.10	6.83	85.1	87.7	89.6	93.3	97.7	102.4	106.9	109.8	115.9
21T VERT TRUNK CIRC S	146.44	7.26	131.7	134.8	137.1	141.3	146.3	151.4	155.9	158.7	164.0
22T AXILLARY ARM CIRC	27.63	2.59	22.7	23.6	24.4	25.8	27.5	29.3	31.0	32.2	34.9
23T BICEPS CIRC RELAX	25.89	2.56	21.0	21.5	22.4	24.1	25.9	27.4	28.8	30.3	33.5
24T FOREARM CIRC RELAX	23.28	1.50	20.5	21.0	21.4	22.2	23.2	24.3	25.3	25.9	27.0
25T SUBSCAPULAR SKNFLD	1.40	.61	.6	.7	.7	1.0	1.2	1.7	2.4	2.7	3.1

*WEIGHT IN KILOGRAMS; ALL OTHER MEASUREMENTS IN CENTIMETERS

TABLE 3A CONTINUED
SUMMARY STATISTICS AND SELECTED PERCENTILES
TRADITIONAL SERIES (N=255)

METRIC UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
26T TRICEPS SKINFOLD	1.74	.50	.7	.9	1.1	1.4	1.7	2.0	2.3	2.6	3.2
27T BICEPS SKINFOLD	.84	.38	.2	.3	.4	.6	.8	1.1	1.3	1.5	2.0
28T SUPRAILIAC SKNFLD	1.68	.71	.4	.7	.8	1.2	1.6	2.1	2.7	3.0	3.6

*WEIGHT IN KILOGRAMS; ALL OTHER MEASUREMENTS IN CENTIMETERS

TABLE 3B
SUMMARY STATISTICS AND SELECTED PERCENTILES
TRADITIONAL SERIES (N=255)

ENGLISH UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
1T CERVICALE HEIGHT	55.23	2.37	50.0	51.2	52.1	53.7	55.3	56.7	58.0	59.0	61.8
2T SUPRASTERNALE HT	52.21	2.22	47.5	48.6	49.3	50.7	52.2	53.7	55.0	55.9	58.0
3T SUBSTERNALE HEIGHT	44.85	1.96	40.7	41.7	42.3	43.5	44.9	46.1	47.3	48.1	50.0
4T ELBOW HEIGHT	40.38	1.89	36.6	37.4	37.9	39.0	40.3	41.7	42.9	43.6	44.9
5T KNUCKLE HEIGHT	27.95	1.56	24.4	25.4	26.0	26.9	27.9	29.0	30.0	30.5	31.3
6T TROCHANTERIC HT	33.82	1.74	30.3	31.0	31.5	32.6	33.8	35.0	36.0	36.7	38.0
7T GLUTEAL FURROW HT	29.18	1.60	25.8	26.7	27.2	28.1	29.1	30.2	31.2	31.9	33.3
8T TIBIALE HEIGHT	17.34	.97	15.2	15.7	16.1	16.7	17.3	18.0	18.6	19.0	19.9
9T ACROMION-RADIALE	12.14	.66	10.7	11.1	11.3	11.7	12.2	12.6	12.9	13.2	13.8
10T RADIALE-STYLION	9.60	.58	8.4	8.7	8.9	9.2	9.5	10.0	10.4	10.6	11.0
11T ELBOW-CENTER GRIP	12.70	.69	11.2	11.7	11.9	12.2	12.6	13.1	13.6	13.9	14.5
12T ELBOW REST HEIGHT	8.16	1.08	5.8	6.3	6.7	7.4	8.2	8.9	9.5	9.9	10.6
13T THIGH CLEARANCE HT	6.07	.52	4.9	5.2	5.4	5.7	6.1	6.4	6.7	6.9	7.5
14T ABDOM-EXTEN DEPTH	8.63	1.02	6.9	7.3	7.5	7.9	8.5	9.1	10.0	10.6	12.3
15T BISPINOUS BREADTH	9.16	.87	7.2	7.9	8.2	8.6	9.1	9.7	10.4	10.8	11.7
16T BIACROMIAL BREADTH	14.06	.63	12.7	13.0	13.2	13.6	14.1	14.5	14.9	15.1	15.6
17T ABDOM-EXTEN BREDTH	11.80	1.18	9.4	10.1	10.4	11.0	11.7	12.5	13.4	13.9	14.9
18T THIGH-THIGH BRDTH	15.07	1.29	12.5	13.0	13.4	14.2	15.0	15.9	16.7	17.3	18.5
19T WAIST C, OMPHALION	30.01	3.10	24.6	25.8	26.4	27.7	29.6	31.9	34.3	35.8	38.6
20T HIP CIRC, SITTING	38.62	2.69	33.5	34.5	35.3	36.7	38.5	40.3	42.1	43.2	45.6
21T VERT TRUNK CIRC S	57.65	2.86	51.8	53.1	54.0	55.6	57.6	59.6	61.4	62.5	64.6
22T AXILLARY ARM CIRC	10.88	1.02	8.9	9.3	9.6	10.2	10.8	11.5	12.2	12.7	13.8
23T BICEPS CIRC RELAX	10.19	1.01	8.3	8.5	8.8	9.5	10.2	10.8	11.3	11.9	13.2
24T FOREARM CIRC RELAX	9.16	.59	8.1	8.3	8.4	8.7	9.1	9.6	10.0	10.2	10.6
25T SUBSCAPULAR SKNFLD	.55	.24	.2	.3	.3	.4	.5	.7	1.0	1.1	1.2

*WEIGHT IN POUNDS; ALL OTHER MEASUREMENTS IN INCHES

TABLE 3B CONTINUED

SUMMARY STATISTICS AND SELECTED PERCENTILES

TRADITIONAL SERIES (N=255)

	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
ENGLISH UNITS*						PERCENTILES					
26T TRICEPS SKINFOLD	.69	.20	.3	.4	.4	.6	.7	.8	.9	1.0	1.3
27T BICEPS SKINFOLD	.33	.15	.1	.1	.1	.2	.3	.4	.5	.6	.8
28T SUPRAILIAC SKNFLD	.66	.28	.2	.3	.3	.5	.6	.8	1.0	1.2	1.4

*WEIGHT IN POUNDS; ALL OTHER MEASUREMENTS IN INCHES

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TABLE 4
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		1I	2I	3I	4I	5I	6I	7I	8I
1T	CERVICALE HEIGHT		.979	.934	.925	.807	.861	.863	.862
2T	SUPRASTERNALE HT	.979		.958	.935	.815	.876	.868	.868
3T	SUBSTERNALE HEIGHT	.934	.958		.897	.761	.881	.877	.860
4T	ELBOW HEIGHT	.925	.935	.897		.896	.805	.781	.794
5T	KNUCKLE HEIGHT	.807	.815	.761	.896		.644	.617	.647
6T	TROCHANTERIC HT	.861	.876	.881	.805	.644		.884	.864
7T	GLUTEAL FURROW HT	.863	.868	.877	.781	.617	.884		.899
8T	TIBIALE HEIGHT	.862	.868	.860	.794	.647	.864	.899	
9T	ACROMION-RADIALE	.608	.805	.793	.688	.529	.794	.785	.756
10T	RADIALE-STYLION	.739	.726	.746	.625	.384	.792	.815	.777
11T	ELBOW-CENTER GRIP	.727	.724	.742	.613	.363	.770	.796	.750
12T	ELBOW REST HEIGHT	.266	.270	.190	.443	.560	.002	-.053	.037
13T	THIGH CLEARANCE HT	.218	.239	.272	.275	.220	.237	.173	.160
14T	ABDOM-EXTEN DEPTH	.230	.228	.228	.246	.202	.178	.161	.160
15T	BISPINOUS BREADTH	.379	.359	.294	.386	.340	.215	.232	.224
16T	BIACROMIAL BREADTH	.389	.383	.379	.291	.183	.335	.300	.349
17T	ABDOM-EXTEN BRDTH	.457	.467	.423	.517	.472	.337	.307	.346
18T	THIGH-THIGH BRDTH	.362	.383	.333	.411	.369	.301	.174	.238
19T	WAIST C, OMPHALION	.308	.317	.311	.351	.284	.278	.227	.222
20T	HIP CIRC, SITTING	.473	.481	.455	.511	.449	.396	.302	.345
21T	VERT TRUNK CIRC S	.667	.660	.601	.721	.676	.448	.367	.419
22T	AXILLARY ARM CIRC	.289	.289	.305	.330	.261	.253	.197	.195
23T	BICEPS CIRC RELAX	.254	.256	.262	.322	.261	.221	.156	.166
24T	FOREARM CIRC RELAX	.385	.383	.391	.392	.300	.354	.297	.326
25T	SUBSCAPULAR SKNFLD	.128	.121	.127	.161	.102	.126	.094	.064
26T	TRICEPS SKINFOLD	.238	.244	.224	.303	.268	.189	.145	.164
27T	BICEPS SKINFOLD	.207	.211	.209	.294	.266	.162	.132	.129
28T	SUPRAILIAC SKNFLD	.204	.213	.206	.267	.221	.184	.147	.108
1C	WEIGHT	.563	.567	.551	.579	.484	.504	.426	.440
2C	STATURE	.979	.985	.932	.931	.823	.846	.835	.843
3C	SHOULDER HEIGHT	.968	.974	.940	.969	.845	.868	.850	.851
4C	AXILLA HEIGHT	.966	.976	.948	.960	.833	.872	.856	.852
5C	BUSTPOINT HEIGHT	.941	.954	.931	.908	.790	.853	.860	.841
6C	WAIST HEIGHT	.894	.911	.898	.829	.679	.860	.875	.854
7C	CROTCH HEIGHT	.868	.876	.892	.788	.621	.923	.952	.897

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		1I	2I	3I	4I	5I	6I	7I	8I
8C	BUTTOCK HEIGHT	.868	.872	.879	.804	.630	.914	.925	.870
9C	KNEECAP HEIGHT	.872	.879	.875	.796	.641	.884	.921	.933
10C	CALF HEIGHT	.761	.759	.769	.675	.507	.794	.843	.827
11C	SITTING HEIGHT	.712	.714	.614	.709	.717	.438	.391	.459
12C	EYE HEIGHT/SIT	.688	.692	.597	.698	.705	.412	.367	.442
13C	SHOULDER-ELBOW L	.830	.829	.823	.714	.543	.822	.808	.782
14C	ELBOW-FINGERTIP	.741	.738	.758	.621	.369	.795	.800	.768
15C	KNEE HEIGHT/SIT	.883	.885	.868	.808	.638	.879	.901	.903
16C	POPLITEAL HEIGHT	.869	.870	.863	.771	.606	.879	.914	.908
17C	BUTTOCK-KNEE LGTH	.772	.787	.793	.710	.564	.787	.771	.722
18C	BUST DEPTH	.278	.274	.292	.299	.223	.242	.207	.200
19C	WAIST DEPTH	.240	.231	.253	.256	.208	.209	.184	.163
20C	CHEST BREADTH	.340	.339	.343	.365	.330	.298	.262	.269
21C	WAIST BREADTH	.300	.292	.296	.337	.284	.255	.234	.224
22C	HIP BREADTH	.454	.462	.395	.482	.439	.367	.250	.317
23C	SHOULDER BREADTH	.405	.403	.420	.391	.290	.367	.307	.312
24C	NECK CIRCUMFERENCE	.367	.362	.396	.368	.284	.355	.314	.341
25C	SHOULDER CIRC	.375	.375	.411	.360	.257	.369	.310	.315
26C	CHEST CIRC AT SCYE	.380	.393	.415	.406	.341	.343	.314	.317
27C	BUST CIRCUMFERENCE	.333	.337	.362	.366	.309	.303	.259	.262
28C	CHEST C BELOW BUST	.354	.350	.357	.385	.358	.308	.271	.272
29C	WAIST CIRC	.290	.283	.300	.313	.258	.248	.216	.206
30C	HIP CIRCUMFERENCE	.454	.465	.437	.493	.428	.410	.285	.339
31C	VERTICAL TRUNK CIR	.664	.668	.611	.726	.698	.451	.371	.441
32C	ARM CIRC AT SCYE	.435	.433	.442	.475	.398	.399	.348	.340
33C	BICEPS CIRC, FLXD	.276	.281	.297	.339	.268	.269	.192	.207
34C	ELBOW CIRC, FLXD	.483	.483	.492	.486	.398	.481	.461	.450
35C	FOREARM CIRC, FLXD	.380	.379	.387	.393	.305	.361	.310	.327
36C	WRIST CIRC	.461	.455	.444	.445	.324	.398	.376	.391
37C	UPPER THIGH CIRC	.310	.324	.314	.365	.311	.292	.188	.221
38C	KNEE CIRCUMFERENCE	.443	.448	.417	.470	.381	.395	.300	.315
39C	CALF CIRCUMFERENCE	.276	.276	.251	.298	.236	.256	.134	.191
40C	ANKLE CIRC	.386	.383	.340	.393	.338	.320	.239	.298
41C	SHOULDER LENGTH	.289	.274	.248	.135	.021	.240	.238	.241
42C	INTERSCYE BACK	.265	.255	.270	.159	.088	.261	.220	.240

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		1I	2I	3I	4I	5I	6I	7I	8I
43C	INTERSCYE FRONT	.335	.346	.337	.297	.178	.280	.260	.312
44C	BACK ARC, BUST	.286	.279	.304	.301	.240	.246	.208	.208
45C	BACK ARC, WAIST	.292	.282	.300	.316	.265	.263	.227	.211
46C	BACK ARC, HIP	.335	.354	.339	.360	.304	.297	.210	.243
47C	WAIST BACK	.540	.461	.403	.447	.447	.290	.290	.331
48C	WAIST FRONT	.383	.380	.349	.420	.455	.222	.157	.201
49C	NECK-BUSTPOINT LGT	.323	.341	.328	.326	.252	.305	.218	.257
50C	AXILLA-WAIST LEVEL	.268	.260	.256	.339	.376	.139	.093	.124
51C	SLEEVE INSEAM	.757	.751	.755	.595	.381	.826	.813	.769
52C	SLEEVE OUTSEAM	.817	.813	.815	.707	.481	.830	.835	.808
53C	CROTCH LENGTH	.441	.466	.406	.471	.431	.341	.264	.309
54C	HEAD CIRCUMFERENCE	.372	.389	.411	.342	.245	.382	.370	.381
55C	HEAD BREADTH	.268	.281	.266	.283	.231	.239	.264	.273
56C	HEAD LENGTH	.329	.344	.358	.292	.221	.341	.319	.342
57C	PALM LENGTH	.607	.612	.627	.514	.309	.651	.643	.615
58C	HAND BREADTH	.450	.479	.495	.431	.291	.448	.427	.490
59C	HAND CIRCUMFERENCE	.481	.499	.501	.455	.308	.452	.436	.494
60C	HAND LENGTH	.650	.656	.675	.564	.337	.697	.699	.683
61C	INSTEP LENGTH	.670	.685	.675	.601	.413	.682	.687	.693
62C	FOOT LENGTH	.724	.731	.721	.643	.461	.739	.732	.724
63C	HEEL-ANKLE CIRC	.620	.622	.626	.565	.399	.647	.582	.598
64C	FOOT BREADTH	.384	.403	.400	.360	.267	.372	.326	.420
65C	HEEL BREADTH	.281	.276	.302	.245	.109	.339	.288	.278
66C	FOOT CIRCUMFERENCE	.410	.424	.434	.396	.289	.425	.326	.400
67C	INSTEP CIRC	.467	.471	.490	.440	.308	.527	.484	.532
68C	ANKLE HEIGHT	.481	.487	.534	.441	.353	.539	.575	.583
69C	SPHYRION HEIGHT	.379	.360	.295	.350	.381	.257	.244	.377
70C	AGE	.192	.212	.184	.241	.216	.136	.118	.121

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		9I	10I	11I	12I	13I	14I	15I	16I
1T	CERVICALE HEIGHT	.808	.739	.727	.266	.218	.230	.379	.389
2T	SUPRASTERNALE HT	.805	.726	.724	.270	.239	.228	.359	.383
3T	SUBSTERNALE HEIGHT	.793	.746	.742	.190	.272	.228	.294	.379
4T	ELBOW HEIGHT	.688	.625	.613	.443	.275	.246	.386	.291
5T	KNUCKLE HEIGHT	.529	.384	.363	.560	.220	.202	.340	.183
6T	TROCHANTERIC HT	.794	.792	.770	.002	.237	.178	.215	.335
7T	GLUTEAL FURROW HT	.785	.815	.796	-053	.173	.161	.232	.300
8T	TIBIALE HEIGHT	.756	.777	.750	.037	.160	.160	.224	.349
9T	ACROMION-RADIALE.		.724	.752	-034	.213	.267	.337	.314
10T	RADIALE-STYLION	.724		.898	-185	.179	.178	.203	.340
11T	ELBOW-CENTER GRIP	.752	.898		-161	.166	.193	.205	.365
12T	ELBOW REST HEIGHT	-034	-185	-161		.011	.027	.168	-032
13T	THIGH CLEARANCE HT	.213	.179	.166	.011		.590	.328	.344
14T	ABDOM-EXTEN DEPTH	.267	.178	.193	.027	.590		.533	.325
15T	BISPINOUS BREADTH	.337	.203	.205	.168	.328	.533		.246
16T	BIACROMIAL BREADTH	.314	.340	.365	-032	.344	.325	.246	
17T	ABDOM-EXTEN BRDTH	.414	.222	.227	.297	.525	.639	.597	.311
18T	THIGH-THIGH BRDTH	.340	.210	.206	.216	.661	.622	.524	.372
19T	WAIST C, OMPHALION	.357	.233	.234	.073	.663	.832	.601	.362
20T	HIP CIRC, SITTING	.438	.294	.311	.208	.712	.762	.591	.412
21T	VERT TRUNK CIRC S	.511	.302	.329	.595	.432	.469	.524	.415
22T	AXILLARY ARM CIRC	.302	.205	.223	.111	.751	.751	.491	.433
23T	BICEPS CIRC RELAX	.237	.221	.199	.105	.759	.728	.488	.372
24T	FOREARM CIRC RELAX	.352	.366	.358	.067	.682	.653	.403	.455
25T	SUBSCAPULAR SKNFLD	.153	.128	.158	.012	.505	.690	.400	.275
26T	TRICEPS SKINFOLD	.227	.165	.144	.095	.659	.566	.413	.212
27T	BICEPS SKINFOLD	.216	.067	.098	.138	.616	.619	.474	.215
28T	SUPRAILIAC SKNFLD	.196	.128	.149	.123	.578	.685	.410	.275
1C	WEIGHT	.521	.444	.438	.166	.764	.764	.579	.522
2C	STATURE	.797	.689	.689	.308	.204	.207	.377	.387
3C	SHOULDER HEIGHT	.823	.719	.711	.314	.256	.259	.390	.338
4C	AXILLA HEIGHT	.811	.716	.716	.309	.230	.208	.340	.348
5C	BUSTPOINT HEIGHT	.801	.715	.721	.243	.175	.157	.289	.313
6C	WAIST HEIGHT	.775	.737	.727	.112	.184	.107	.249	.309
7C	CROTCH HEIGHT	.806	.827	.797	-077	.176	.121	.194	.297

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		9I	10I	11I	12I	13I	14I	15I	16I
8C	BUTTOCK HEIGHT	.779	.806	.778	-028	.295	.214	.243	.336
9C	KNEECAP HEIGHT	.787	.869	.782	-002	.154	.159	.225	.323
10C	CALF HEIGHT	.710	.792	.770	-103	.225	.205	.190	.283
11C	SITTING HEIGHT	.472	.248	.288	.687	.104	.129	.385	.337
12C	EYE HEIGHT/SIT	.458	.231	.266	.699	.080	.128	.377	.324
13C	SHOULDER-ELBOW L	.965	.770	.775	-037	.205	.247	.312	.329
14C	ELBOW-FINGERTIP	.760	.903	.948	-155	.171	.196	.198	.397
15C	KNEE HEIGHT/SIT	.782	.840	.799	.010	.294	.269	.330	.380
16C	POPLITEAL HEIGHT	.781	.829	.828	-030	.124	.145	.231	.337
17C	BUTTOCK-KNEE LGTH	.760	.723	.696	-089	.476	.459	.371	.368
18C	BUST DEPTH	.318	.212	.216	.072	.602	.732	.482	.340
19C	WAIST DEPTH	.267	.208	.195	.032	.599	.864	.492	.311
20C	CHEST BREADTH	.351	.260	.265	.081	.590	.671	.504	.511
21C	WAIST BREADTH	.311	.225	.204	.081	.636	.743	.556	.391
22C	HIP BREADTH	.404	.269	.263	.224	.614	.563	.554	.370
23C	SHOULDER BREADTH	.420	.333	.349	.060	.662	.647	.458	.711
24C	NECK CIRCUMFERENCE	.318	.273	.321	.078	.532	.520	.247	.442
25C	SHOULDER CIRC	.425	.344	.358	.002	.694	.707	.460	.625
26C	CHEST CIRC AT SCYE	.403	.292	.331	.098	.669	.743	.509	.524
27C	BUST CIRCUMFERENCE	.383	.234	.253	.103	.626	.755	.500	.412
28C	CHEST C BELOW BUST	.360	.278	.273	.144	.593	.740	.520	.451
29C	WAIST CIRC	.319	.233	.229	.065	.642	.833	.557	.378
30C	HIP CIRCUMFERENCE	.427	.294	.304	.176	.755	.667	.535	.430
31C	VERTICAL TRUNK CIR	.524	.314	.337	.517	.533	.590	.557	.418
32C	ARM CIRC AT SCYE	.458	.329	.339	.123	.689	.724	.524	.362
33C	BICEPS CIRC, FLXD	.246	.262	.242	.095	.753	.701	.442	.398
34C	ELBOW CIRC, FLXD	.448	.454	.449	.070	.481	.475	.318	.331
35C	FOREARM CIRC, FLXD	.337	.354	.348	.069	.662	.620	.379	.447
36C	WRIST CIRC	.392	.415	.457	.124	.447	.409	.315	.481
37C	UPPER THIGH CIRC	.292	.231	.217	.123	.840	.692	.474	.399
38C	KNEE CIRCUMFERENCE	.394	.372	.351	.147	.689	.582	.446	.428
39C	CALF CIRCUMFERENCE	.252	.239	.201	.140	.690	.557	.371	.400
40C	ANKLE CIRC	.300	.282	.267	.216	.490	.413	.373	.398
41C	SHOULDER LENGTH	.193	.277	.303	-116	.076	.050	.183	.680
42C	INTERSCYE BACK	.247	.211	.254	-077	.346	.395	.282	.650

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		9I	10I	11I	12I	13I	14I	15I	16I
43C	INTERSCYE FRONT	.297	.337	.358	.002	.329	.408	.258	.743
44C	BACK ARC, BUST	.302	.216	.240	.077	.604	.676	.462	.434
45C	BACK ARC, WAIST	.303	.224	.227	.065	.607	.791	.544	.385
46C	BACK ARC, HIP	.368	.248	.268	.076	.664	.631	.474	.342
47C	WAIST BACK	.363	.276	.269	.342	.120	.250	.300	.335
48C	WAIST FRONT	.265	.110	.127	.391	.185	.327	.325	.235
49C	NECK-BUSTPOINT LGT	.326	.222	.219	.098	.432	.480	.389	.360
50C	AXILLA-WAIST LEVEL	.168	.050	.060	.407	.076	.140	.110	.093
51C	SLEEVE INSEAM	.826	.844	.848	-201	.105	.131	.177	.342
52C	SLEEVE OUTSEAM	.904	.879	.849	-089	.183	.216	.262	.319
53C	CROTCH LENGTH	.359	.220	.229	.267	.520	.467	.442	.313
54C	HEAD CIRCUMFERENCE	.337	.370	.388	-035	.393	.266	.146	.285
55C	HEAD BREADTH	.183	.229	.245	.059	.278	.279	.214	.263
56C	HEAD LENGTH	.302	.317	.325	-025	.298	.135	.097	.208
57C	PALM LENGTH	.602	.680	.766	-082	.180	.163	.158	.312
58C	HAND BREADTH	.413	.478	.509	-004	.337	.265	.191	.404
59C	HAND CIRCUMFERENCE	.421	.511	.533	.026	.338	.308	.226	.442
60C	HAND LENGTH	.642	.734	.815	-083	.199	.178	.174	.372
61C	INSTEP LENGTH	.618	.681	.709	-052	.310	.322	.300	.418
62C	FOOT LENGTH	.659	.705	.730	-026	.316	.304	.288	.431
63C	HEEL-ANKLE CIRC	.535	.596	.586	-026	.486	.377	.333	.500
64C	FOOT BREADTH	.308	.355	.351	.004	.344	.295	.250	.414
65C	HEEL BREADTH	.282	.402	.370	-188	.378	.392	.248	.403
66C	FOOT CIRCUMFERENCE	.322	.376	.361	.034	.417	.361	.277	.405
67C	INSTEP CIRC	.386	.514	.498	-048	.422	.370	.216	.420
68C	ANKLE HEIGHT	.423	.443	.457	-061	.046	.030	-035	.185
69C	SPHYRION HEIGHT	.223	.153	.180	.305	.016	.089	.172	.194
70C	AGE	.160	.055	.105	.104	.092	.275	.286	.088

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		17I	18I	19I	20I	21I	22I	23I	24I
1T	CERVICALE HEIGHT	.457	.362	.308	.473	.667	.289	.254	.385
2T	SUPRASTERNALE HT	.467	.383	.317	.481	.660	.289	.256	.383
3T	SUBSTERNALE HEIGHT	.423	.333	.311	.455	.601	.305	.262	.391
4T	ELBOW HEIGHT	.517	.411	.351	.511	.721	.330	.322	.392
5T	KNUCKLE HEIGHT	.472	.369	.284	.449	.676	.261	.261	.300
6T	TROCHANTERIC HT	.337	.301	.278	.396	.448	.253	.221	.354
7T	GLUTEAL FURROW HT	.307	.174	.227	.302	.367	.197	.156	.297
8T	TIBIALE HEIGHT	.346	.238	.222	.345	.419	.195	.166	.326
9T	ACROMION-RADIALE	.414	.340	.357	.438	.511	.352	.237	.352
10T	RADIALE-STYLION	.222	.210	.233	.294	.302	.205	.221	.366
11T	ELBOW-CENTER GRIP	.227	.206	.234	.311	.329	.223	.199	.358
12T	ELBOW REST HEIGHT	.297	.216	.073	.208	.595	.111	.105	.067
13T	THIGH CLEARANCE HT	.525	.661	.663	.712	.432	.751	.759	.682
14T	ABDOM-EXTEN DEPTH	.639	.622	.832	.762	.469	.751	.728	.653
15T	BISPINOUS BREADTH	.597	.524	.601	.591	.524	.491	.488	.403
16T	BIACROMIAL BREADTH	.311	.372	.362	.412	.415	.433	.372	.455
17T	ABDOM-EXTEN BRDTH		.691	.722	.782	.670	.671	.594	.526
18T	THIGH-THIGH BRDTH	.691		.716	.888	.649	.703	.750	.625
19T	WAIST C, OMPHALION	.722	.716		.835	.560	.844	.789	.682
20T	HIP CIRC, SITTING	.782	.888	.835		.718	.809	.792	.729
21T	VERT TRUNK CIRC S	.670	.649	.560	.718		.577	.542	.523
22T	AXILLARY ARM CIRC	.671	.703	.844	.809	.577		.900	.813
23T	BICEPS CIRC RELAX	.594	.750	.789	.792	.542	.900		.847
24T	FOREARM CIRC RELAX	.526	.625	.682	.729	.523	.813	.847	
25T	SUBSCAPULAR SKNFLD	.476	.536	.718	.608	.363	.719	.660	.548
26T	TRICEPS SKINFOLD	.517	.678	.645	.696	.424	.707	.785	.642
27T	BICEPS SKINFOLD	.603	.611	.718	.669	.470	.757	.732	.617
28T	SUPRAILIAC SKNFLD	.558	.622	.761	.678	.469	.744	.683	.587
1C	WEIGHT	.727	.843	.834	.918	.732	.850	.862	.835
2C	STATURE	.459	.374	.292	.469	.685	.271	.236	.360
3C	SHOULDER HEIGHT	.499	.406	.357	.509	.694	.322	.299	.396
4C	AXILLA HEIGHT	.458	.374	.309	.468	.668	.278	.249	.359
5C	BUSTPOINT HEIGHT	.379	.288	.234	.387	.595	.201	.164	.294
6C	WAIST HEIGHT	.374	.257	.209	.350	.505	.182	.135	.286
7C	CROTCH HEIGHT	.291	.198	.222	.302	.358	.183	.144	.291

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		_17I_	_18I_	_19I_	_20I_	_21I_	_22I_	_23I_	_24I_
8C	BUTTOCK HEIGHT	.382	.293	.309	.409	.426	.286	.255	.373
9C	KNEECAP HEIGHT	.309	.221	.229	.340	.415	.190	.166	.317
10C	CALF HEIGHT	.235	.250	.238	.328	.317	.220	.226	.346
11C	SITTING HEIGHT	.454	.367	.201	.413	.783	.228	.181	.258
12C	EYE HEIGHT/SIT	.456	.352	.198	.406	.781	.207	.158	.227
13C	SHOULDER-ELBOW L	.398	.321	.335	.423	.516	.280	.221	.363
14C	ELBOW-FINGERTIP	.210	.210	.229	.315	.345	.228	.220	.390
15C	KNEE HEIGHT/SIT	.400	.362	.336	.457	.490	.285	.298	.436
16C	POPLITEAL HEIGHT	.256	.205	.207	.313	.393	.163	.145	.310
17C	BUTTOCK-KNEE LGTH	.466	.577	.529	.673	.519	.487	.499	.544
18C	BUST DEPTH	.630	.599	.766	.713	.559	.766	.729	.628
19C	WAIST DEPTH	.588	.532	.832	.680	.447	.756	.724	.652
20C	CHEST BREADTH	.641	.625	.756	.699	.540	.759	.710	.657
21C	WAIST BREADTH	.669	.630	.834	.730	.508	.760	.731	.652
22C	HIP BREADTH	.649	.925	.678	.863	.656	.637	.684	.587
23C	SHOULDER BREADTH	.600	.640	.745	.721	.582	.831	.746	.743
24C	NECK CIRCUMFERENCE	.417	.395	.553	.567	.434	.619	.544	.661
25C	SHOULDER CIRC	.607	.645	.791	.756	.557	.880	.803	.789
26C	CHEST CIRC AT SCYE	.653	.645	.804	.771	.587	.862	.802	.756
27C	BUST CIRCUMFERENCE	.690	.651	.824	.774	.600	.821	.752	.671
28C	CHEST C BELOW BUST	.652	.604	.788	.720	.586	.753	.734	.679
29C	WAIST CIRC	.645	.646	.881	.775	.518	.812	.782	.702
30C	HIP CIRCUMFERENCE	.713	.920	.791	.945	.684	.783	.789	.701
31C	VERTICAL TRUNK CIR	.696	.710	.634	.797	.888	.634	.624	.595
32C	ARM CIRC AT SCYE	.693	.654	.804	.830	.610	.884	.817	.797
33C	BICEPS CIRC, FLXD	.554	.702	.757	.769	.523	.884	.973	.858
34C	ELBOW CIRC, FLXD	.473	.460	.532	.579	.452	.607	.633	.750
35C	FOREARM CIRC, FLXD	.503	.595	.662	.703	.506	.787	.833	.952
36C	WRIST CIRC	.421	.428	.436	.542	.519	.539	.556	.741
37C	UPPER THIGH CIRC	.643	.893	.770	.881	.573	.806	.850	.747
38C	KNEE CIRCUMFERENCE	.599	.807	.629	.801	.613	.666	.741	.732
39C	CALF CIRCUMFERENCE	.491	.727	.568	.721	.513	.646	.731	.718
40C	ANKLE CIRC	.486	.551	.426	.591	.525	.478	.547	.621
41C	SHOULDER LENGTH	.052	.153	.095	.140	.194	.131	.097	.152
42C	INTERSCYE BACK	.309	.381	.410	.426	.347	.486	.408	.480

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		17I	18I	19I	20I	21I	22I	23I	24I
43C	INTERSCYE FRONT	.331	.392	.413	.433	.382	.441	.419	.482
44C	BACK ARC, BUST	.594	.595	.735	.675	.521	.724	.692	.635
45C	BACK ARC, WAIST	.624	.628	.849	.754	.516	.782	.751	.691
46C	BACK ARC, HIP	.630	.823	.707	.872	.564	.686	.698	.616
47C	WAIST BACK	.270	.242	.204	.329	.503	.236	.240	.296
48C	WAIST FRONT	.372	.355	.335	.407	.497	.342	.345	.273
49C	NECK-BUSTPOINT LGT	.541	.541	.566	.600	.493	.594	.554	.479
50C	AXILLA-WAIST LEVEL	.161	.142	.119	.183	.337	.165	.128	.070
51C	SLEEVE INSEAM	.230	.159	.182	.245	.306	.139	.095	.241
52C	SLEEVE OUTSEAM	.330	.269	.286	.351	.423	.214	.195	.316
53C	CROTCH LENGTH	.551	.626	.541	.662	.628	.517	.502	.455
54C	HEAD CIRCUMFERENCE	.264	.282	.267	.375	.285	.337	.348	.463
55C	HEAD BREADTH	.267	.273	.281	.338	.266	.315	.349	.413
56C	HEAD LENGTH	.173	.213	.156	.265	.231	.238	.243	.353
57C	PALM LENGTH	.205	.170	.156	.258	.306	.169	.158	.284
58C	HAND BREADTH	.291	.312	.288	.395	.343	.348	.371	.561
59C	HAND CIRCUMFERENCE	.317	.328	.319	.420	.384	.392	.417	.609
60C	HAND LENGTH	.194	.172	.182	.266	.315	.214	.201	.355
61C	INSTEP LENGTH	.342	.333	.346	.460	.395	.328	.338	.459
62C	FOOT LENGTH	.333	.325	.320	.441	.414	.320	.326	.466
63C	HEEL-ANKLE CIRC	.407	.467	.414	.559	.444	.429	.457	.604
64C	FOOT BREADTH	.299	.328	.291	.404	.287	.319	.337	.486
65C	HEEL BREADTH	.219	.395	.345	.414	.194	.356	.419	.513
66C	FOOT CIRCUMFERENCE	.388	.475	.366	.508	.380	.424	.432	.578
67C	INSTEP CIRC	.315	.334	.336	.452	.312	.399	.440	.599
68C	ANKLE HEIGHT	.089	-090	.048	.060	.114	.046	-055	.118
69C	SPHYRION HEIGHT	.180	.144	.057	.174	.306	.101	.102	.241
70C	AGE	.219	.206	.268	.279	.251	.185	.205	.151

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		25I	26I	27I	28I
1T	CERVICALE HEIGHT	.128	.238	.207	.204
2T	SUPRASTERNALE HT	.121	.244	.211	.213
3T	SUBSTERNALE HEIGHT	.127	.224	.209	.206
4T	ELBOW HEIGHT	.161	.303	.294	.267
5T	KNUCKLE HEIGHT	.102	.268	.266	.221
6T	TROCHANTERIC HT	.126	.189	.162	.184
7T	GLUTEAL FURROW HT	.094	.145	.132	.147
8T	TIBIALE HEIGHT	.064	.164	.129	.108
9T	ACROMION-RADIALE	.153	.227	.216	.196
10T	RADIALE-STYLION	.128	.165	.067	.128
11T	ELBOW-CENTER GRIP	.158	.144	.098	.149
12T	ELBOW REST HEIGHT	.012	.095	.138	.123
13T	THIGH CLEARANCE HT	.505	.659	.616	.578
14T	ABDOM-EXTEN DEPTH	.690	.566	.619	.685
15T	BISPINOUS BREADTH	.400	.413	.474	.410
16T	BIACROMIAL BREADTH	.275	.212	.215	.275
17T	ABDOM-EXTEN BRDTH	.476	.517	.603	.558
18T	THIGH-THIGH BRDTH	.536	.678	.611	.622
19T	WAIST C, OMPHALION	.718	.645	.718	.761
20T	HIP CIRC, SITTING	.608	.696	.669	.678
21T	VERT TRUNK CIRC S	.363	.424	.470	.469
22T	AXILLARY ARM CIRC	.719	.707	.757	.744
23T	BICEPS CIRC RELAX	.660	.785	.732	.683
24T	FOREARM CIRC RELAX	.548	.642	.617	.587
25T	SUBSCAPULAR SKNFLD		.610	.655	.814
26T	TRICEPS SKINFOLD	.610		.723	.651
27T	BICEPS SKINFOLD	.655	.723		.702
28T	SUPRAILIAC SKNFLD	.814	.651	.702	
1C	WEIGHT	.647	.698	.673	.705
2C	STATURE	.089	.226	.198	.178
3C	SHOULDER HEIGHT	.153	.287	.268	.245
4C	AXILLA HEIGHT	.120	.250	.224	.215
5C	BUSTPOINT HEIGHT	.033	.167	.139	.129
6C	WAIST HEIGHT	.055	.174	.135	.131
7C	CROTCH HEIGHT	.074	.148	.116	.117

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		_25I_	_26I_	_27I_	_28I_
8C	BUTTOCK HEIGHT	.166	.238	.210	.228
9C	KNEECAP HEIGHT	.081	.163	.130	.134
10C	CALF HEIGHT	.143	.245	.162	.162
11C	SITTING HEIGHT	.008	.143	.172	.125
12C	EYE HEIGHT/SIT	-003	.133	.161	.119
13C	SHOULDER-ELBOW L	.123	.196	.191	.169
14C	ELBOW-FINGERTIP	.144	.139	.061	.130
15C	KNEE HEIGHT/SIT	.168	.287	.212	.217
16C	POPLITEAL HEIGHT	.085	.143	.083	.107
17C	BUTTOCK-KNEE LGTH	.340	.463	.373	.386
18C	BUST DEPTH	.689	.580	.667	.682
19C	WAIST DEPTH	.703	.550	.627	.702
20C	CHEST BREADTH	.629	.564	.597	.685
21C	WAIST BREADTH	.629	.552	.649	.679
22C	HIP BREADTH	.455	.652	.568	.569
23C	SHOULDER BREADTH	.656	.576	.606	.666
24C	NECK CIRCUMFERENCE	.474	.363	.416	.521
25C	SHOULDER CIRC	.672	.599	.641	.685
26C	CHEST CIRC AT SCYE	.674	.583	.666	.683
27C	BUST CIRCUMFERENCE	.693	.593	.674	.721
28C	CHEST C BELOW BUST	.634	.535	.615	.662
29C	WAIST CIRC	.718	.595	.678	.753
30C	HIP CIRCUMFERENCE	.588	.718	.663	.676
31C	VERTICAL TRUNK CIR	.426	.539	.516	.526
32C	ARM CIRC AT SCYE	.662	.613	.670	.682
33C	BICEPS CIRC, FLXD	.629	.736	.672	.637
34C	ELBOW CIRC, FLXD	.344	.420	.471	.428
35C	FOREARM CIRC, FLXD	.517	.585	.576	.566
36C	WRIST CIRC	.306	.379	.331	.370
37C	UPPER THIGH CIRC	.586	.735	.663	.682
38C	KNEE CIRCUMFERENCE	.473	.655	.545	.550
39C	CALF CIRCUMFERENCE	.419	.600	.500	.488
40C	ANKLE CIRC	.255	.463	.359	.367
41C	SHOULDER LENGTH	.023	-004	-002	-002
42C	INTERSCYE BACK	.362	.244	.305	.356

TABLE 4 CONTINUED
CORRELATIONS: CORE AND TRADITIONAL SERIES (N=255)

		_251_	_261_	_271_	_281_
43C	INTERSCYE FRONT	.371	.282	.251	.342
44C	BACK ARC, BUST	.627	.544	.615	.651
45C	BACK ARC, WAIST	.673	.560	.659	.710
46C	BACK ARC, HIP	.535	.671	.554	.619
47C	WAIST BACK	.117	.129	.142	.116
48C	WAIST FRONT	.167	.219	.247	.230
49C	NECK-BUSTPOINT LGT	.491	.443	.477	.491
50C	AXILLA-WAIST LEVEL	-046	.059	.049	.022
51C	SLEEVE INSEAM	.045	.065	.018	.040
52C	SLEEVE OUTSEAM	.114	.186	.124	.135
53C	CROTCH LENGTH	.389	.498	.432	.477
54C	HEAD CIRCUMFERENCE	.272	.308	.181	.280
55C	HEAD BREADTH	.264	.280	.221	.236
56C	HEAD LENGTH	.143	.226	.133	.208
57C	PALM LENGTH	.125	.092	.080	.116
58C	HAND BREADTH	.134	.196	.149	.210
59C	HAND CIRCUMFERENCE	.167	.240	.165	.248
60C	HAND LENGTH	.139	.119	.069	.120
61C	INSTEP LENGTH	.203	.258	.174	.233
62C	FOOT LENGTH	.184	.254	.186	.223
63C	HEEL-ANKLE CIRC	.237	.358	.261	.337
64C	FOOT BREADTH	.221	.260	.181	.227
65C	HEEL BREADTH	.292	.243	.194	.309
66C	FOOT CIRCUMFERENCE	.232	.342	.229	.291
67C	INSTEP CIRC	.248	.295	.216	.296
68C	ANKLE HEIGHT	-012	-075	-029	.000
69C	SPHYRION HEIGHT	.029	.074	.102	.027
70C	AGE	.148	.149	.164	.207

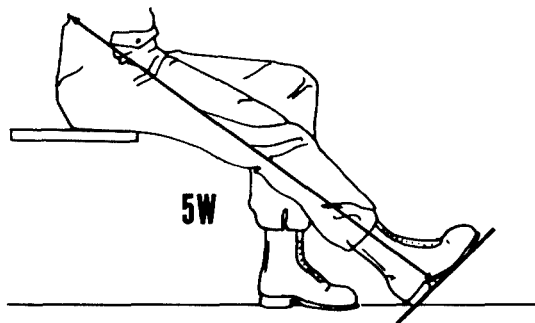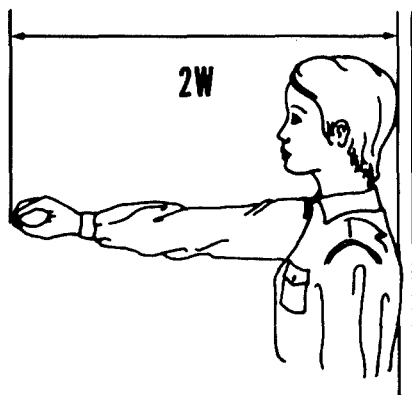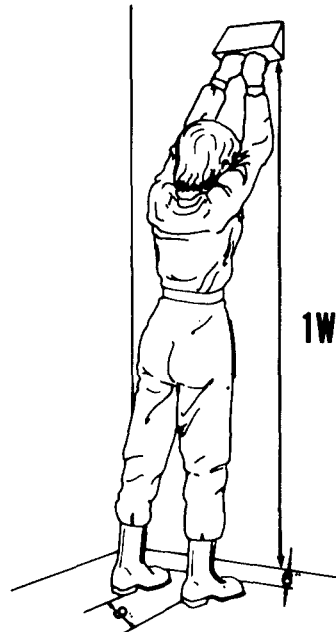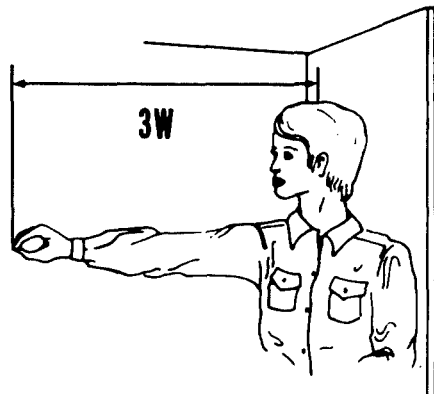# THE VISUAL INDEX
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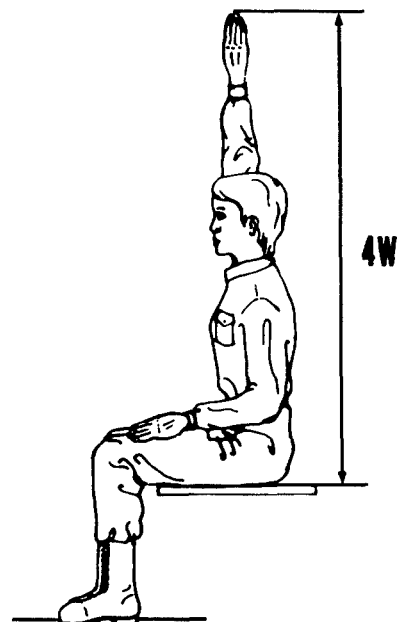
Figure 3. The visual index: workspace series.

1W OVERHEAD REACH HEIGHT: vertical distance from floor to the highest point on the first phalanges when subject stands 6 inches from the wall, her arms extended overhead, fists together and against the wall, and the first phalanges horizontal.

2W FUNCTIONAL REACH: horizontal distance from wall to the tip of the thumb measured with subject's back against the wall, her arm horizontal, and tip of the index finger touching the pad of the thumb.

3W FUNCTIONAL REACH, EXTENDED: distance from wall to the tip of the right thumb measured with left shoulder in firm contact with the wall, right shoulder extended as far as possible, arm held horizontal and tip of the index finger touching the pad of the thumb.

4W OVERHEAD REACH, SITTING: height of the tip of the middle finger above the sitting surface measured with subject sitting erect, her right side against a wall, left hand in her lap, right arm and hand extended upward and palm against the wall.

5W FUNCTIONAL LEG LENGTH: distance along the main axis of the leg from bottom of the foot to the posterior torso surface, measured with leg extended and knee straightened using an anthropometer whose base is in firm contact with the foot's plantar surface.

6W WEIGHT (CLOTHED): weight of subject wearing normal indoor apparel (not pictured).

THE VISUAL INDEX
WORKSPACE SERIES (CONT.)
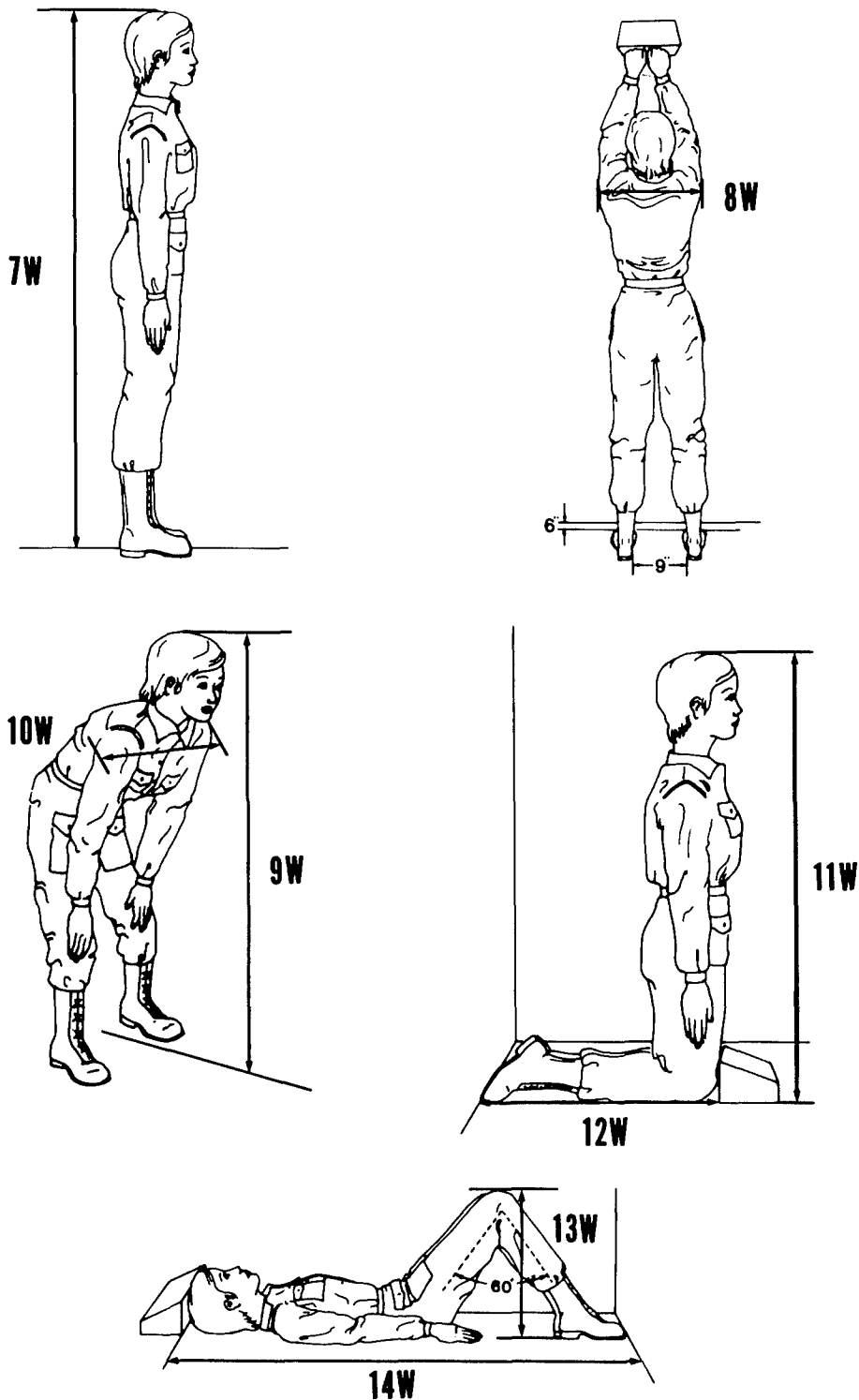
7W

8W

6"

9"

10W

9W

11W

12W

13W

60°

14W

Figure 3. The visual index: workspace series (continued).

7W STATURE (CLOTHED): distance from floor to top of the head measured with the subject wearing normal indoor apparel.

8W OVERHEAD REACH BREADTH: maximum breadth across arms or shoulders, whichever is wider, measured as subject stands with her toes six inches from a wall, arms extended overhead, fists touching each other and against the wall, and first phalanges horizontal.

9W BENT TORSO HEIGHT: distance from floor to top of the head measured as subject stands, her feet 12 inches apart, palms of her hands on her kneecaps, and head as close to the Frankfort plane as possible.

10W BENT TORSO BREADTH: maximum breadth of the shoulders measured as subject stands, her feet 12 inches apart, palms of her hands on her kneecaps, and head as close to the Frankfort plane as possible.

11W KNEELING HEIGHT: distance from floor to top of the head measured as subject kneels with her toes extended and touching a wall, torso erect, arms hanging loosely, and head in a Frankfort plane.

12W KNEELING LEG LENGTH: distance measured from the wall to the anterior portion of the knee as subject kneels, toes extended and touching a wall.

13W BENT KNEE HEIGHT: height of the highest point on the knee when subject lies supine, knees raised so that the angle between the upper and lower legs approximates 60 degrees and her toes touch a wall.

14W HORIZONTAL LENGTH/KNEES BENT: distance from vertex to tip of the toes when subject lies supine, her knees raised so that the angle between the upper and lower legs approximates 60 degrees and her toes touch a wall.

TABLE 5A
SUMMARY STATISTICS AND SELECTED PERCENTILES
WORKSPACE SERIES (N=296)

METRIC UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
1W OVERHEAD REACH HT	199.21	9.07	176.0	185.2	188.6	193.2	198.6	205.1	211.5	215.1	219.5
2W FUNCTIONAL REACH	71.20	4.54	60.9	64.0	65.5	68.0	71.0	74.3	77.3	79.0	81.5
3W FUNCT REACH EXTEND	83.15	5.86	68.6	73.4	75.7	79.2	83.2	87.2	90.8	92.7	95.5
4W OVERHEAD REACH SIT	129.03	6.62	111.3	117.3	120.3	124.8	129.3	133.6	137.3	139.5	143.5
5W FUNCTIONAL LEG LTH	108.93	5.79	93.6	99.6	101.9	105.2	108.8	112.8	116.6	118.7	121.3
6W WEIGHT	61.69	8.04	43.8	48.8	51.6	56.3	61.6	67.0	71.9	74.7	79.7
7W STATURE	167.19	6.67	150.4	156.8	159.3	162.9	166.8	171.3	175.9	178.7	183.7
8W OVERHEAD REACH BRD	34.78	1.93	30.2	31.5	32.3	33.5	34.8	36.0	37.1	37.9	39.9
9W BENT TORSO HEIGHT	126.03	7.84	108.8	112.7	115.5	120.6	126.2	131.4	135.8	138.6	144.5
10W BENT TORSO BREADTH	40.13	2.03	35.8	36.8	37.4	38.7	40.1	41.6	42.8	43.5	44.7
11W KNEELING HEIGHT	122.06	4.78	110.0	114.4	116.3	118.9	121.8	125.0	128.2	130.3	134.3
12W KNEELING LEG LNGTH	64.84	3.47	57.6	59.2	60.3	62.4	64.8	67.1	69.2	70.5	73.1
13W BENT KNEE HT SUPIN	45.51	2.55	39.3	41.3	42.3	43.8	45.5	47.2	48.7	49.6	51.1
14W HORI LG KNEES BENT	150.94	7.18	134.8	140.3	142.5	146.1	150.4	155.6	160.8	163.8	168.6

*WEIGHT IN KILOGRAMS; ALL OTHER MEASUREMENTS IN CENTIMETERS

TABLE 5B
SUMMARY STATISTICS AND SELECTED PERCENTILES
WORKSPACE SERIES (N=296)

ENGLISH UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
						PERCENTILES					
1W OVERHEAD REACH HT	78.43	3.57	69.3	72.9	74.2	76.1	78.2	80.8	83.3	84.7	86.4
2W FUNCTIONAL REACH	28.03	1.79	24.0	25.2	25.8	26.8	28.0	29.3	30.4	31.1	32.1
3W FUNCT REACH EXTEND	32.73	2.31	27.0	28.9	29.8	31.2	32.8	34.3	35.7	36.5	37.6
4W OVERHEAD REACH SIT	50.80	2.61	43.8	46.2	47.3	49.1	50.9	52.6	54.1	54.9	56.5
5W FUNCTIONAL LEG LTH	42.89	2.26	36.8	39.2	40.1	41.4	42.8	44.4	45.9	46.7	47.8
6W WEIGHT	136.00	17.73	96.5	107.6	113.7	124.0	135.8	147.8	158.4	164.6	175.6
7W STATURE	65.82	2.63	59.2	61.7	62.7	64.1	65.7	67.4	69.2	7U.4	72.3
8W OVERHEAD REACH BRD	13.69	.76	11.9	12.4	12.7	13.2	13.7	14.2	14.6	14.9	15.7
9W BENT TORSO HEIGHT	49.62	3.09	42.8	44.4	45.5	47.5	49.7	51.7	53.5	54.6	56.9
10W BENT TORSO BREADTH	15.80	.80	14.1	14.5	14.7	15.2	15.8	16.4	16.8	17.1	17.6
11W KNEELING HEIGHT	48.05	1.88	43.3	45.1	45.8	46.8	48.0	49.2	50.5	51.3	52.9
12W KNEELING LEG LNGTH	25.53	1.37	22.7	23.3	23.7	24.6	25.5	26.4	27.3	27.8	28.8
13W BENT KNEE HT SUPIN	17.92	1.01	15.5	16.3	16.6	17.2	17.9	18.6	19.2	19.5	20.1
14W HORI LG KNEES BENT	59.42	2.83	53.1	55.2	56.1	57.5	59.2	61.3	63.3	64.5	66.4

*WEIGHT IN POUNDS; ALL OTHER MEASUREMENTS IN INCHES

TABLE 6
CORRELATIONS: CORE AND WORKSPACE SERIES (N=296)

		1W	2W	3W	4W	5W	6W	7W	8W
1W	OVERHEAD REACH HT		.600	.598	.755	.784	.546	.931	.322
2W	FUNCTIONAL REACH	.600		.777	.531	.518	.445	.588	.291
3W	FUNCT REACH EXTEND	.598	.777		.629	.541	.419	.590	.273
4W	OVERHEAD REACH SIT	.755	.531	.629		.708	.528	.749	.275
5W	FUNCTIONAL LEG LTH	.784	.518	.541	.708		.481	.804	.278
6W	WEIGHT	.546	.445	.419	.528	.481		.586	.618
7W	STATURE	.931	.588	.590	.749	.804	.586		.412
8W	OVERHEAD REACH BRD	.322	.291	.273	.275	.278	.618	.412	
9W	BENT TORSO HEIGHT	.490	.434	.423	.437	.480	.294	.509	.201
10W	BENT TORSO BREADTH	.428	.366	.324	.442	.357	.640	.445	.618
11W	KNEELING HEIGHT	.865	.472	.490	.715	.735	.563	.955	.408
12W	KNEELING LEG LNGTH	.803	.539	.546	.614	.671	.547	.815	.366
13W	BENT KNEE HT SUPIN	.697	.606	.545	.548	.660	.525	.694	.296
14W	HORI LG KNEES BENT	.752	.408	.457	.622	.645	.470	.816	.382
1C	WEIGHT	.533	.422	.392	.514	.465	.997	.574	.614
2C	STATURE	.924	.571	.578	.750	.806	.591	.994	.417
3C	SHOULDER HEIGHT	.915	.564	.562	.753	.817	.602	.967	.394
4C	AXILLA HEIGHT	.917	.565	.563	.746	.822	.565	.967	.370
5C	BUSTPOINT HEIGHT	.894	.548	.548	.704	.782	.487	.931	.317
6C	WAIST HEIGHT	.886	.540	.534	.680	.786	.507	.897	.346
7C	CROTCH HEIGHT	.886	.624	.607	.643	.819	.449	.878	.288
8C	BUTTOCK HEIGHT	.845	.612	.598	.664	.803	.489	.843	.306
9C	KNEECAP HEIGHT	.864	.614	.600	.659	.802	.465	.868	.321
10C	CALF HEIGHT	.770	.551	.528	.521	.703	.465	.759	.371
11C	SITTING HEIGHT	.612	.284	.331	.589	.467	.506	.760	.416
12C	EYE HEIGHT/SIT	.595	.265	.303	.560	.452	.461	.735	.371
13C	SHOULDER-ELBOW L	.855	.637	.605	.682	.727	.520	.813	.335
14C	ELBOW-FINGERTIP	.806	.651	.638	.674	.685	.492	.766	.380
15C	KNEE HEIGHT/SIT	.876	.637	.595	.634	.771	.575	.876	.408
16C	POPLITEAL HEIGHT	.863	.620	.593	.604	.773	.428	.863	.332
17C	BUTTOCK-KNEE LGTH	.795	.581	.547	.555	.711	.704	.773	.425
18C	BUST DEPTH	.179	.180	.133	.190	.201	.693	.184	.351
19C	WAIST DEPTH	.127	.163	.100	.172	.208	.672	.136	.338
20C	CHEST BREADTH	.278	.242	.200	.297	.265	.747	.294	.522
21C	WAIST BREADTH	.268	.217	.165	.290	.305	.688	.306	.421

TABLE 6 CONTINUED
CORRELATIONS: CORE AND WORKSPACE SERIES (N=296)

		1W	2W	3W	4W	5W	6W	7W	8W
22C	HIP BREADTH	.330	.242	.201	.282	.193	.750	.360	.483
23C	SHOULDER BREADTH	.387	.322	.302	.431	.352	.795	.402	.641
24C	NECK CIRCUMFERENCE	.266	.272	.271	.297	.270	.653	.330	.526
25C	SHOULDER CIRC	.360	.353	.320	.406	.332	.803	.371	.630
26C	CHEST CIRC AT SCYE	.294	.273	.232	.288	.279	.800	.308	.563
27C	BUST CIRCUMFERENCE	.250	.228	.189	.218	.233	.783	.247	.453
28C	CHEST C BELOW BUST	.260	.237	.222	.287	.243	.770	.282	.441
29C	WAIST CIRC	.229	.243	.158	.231	.250	.745	.257	.434
30C	HIP CIRCUMFERENCE	.405	.306	.271	.404	.321	.878	.439	.535
31C	VERTICAL TRUNK CIR	.545	.296	.290	.547	.442	.808	.643	.516
32C	ARM CIRC AT SCYE	.375	.327	.316	.402	.364	.744	.404	.512
33C	BICEPS CIRC, FLXD	.221	.254	.239	.293	.219	.808	.259	.531
34C	ELBOW CIRC, FLXD	.444	.440	.410	.417	.372	.676	.460	.453
35C	FOREARM CIRC, FLXD	.324	.321	.288	.337	.260	.774	.355	.533
36C	WRIST CIRC	.487	.384	.367	.482	.417	.673	.516	.481
37C	UPPER THIGH CIRC	.276	.276	.238	.305	.230	.863	.316	.508
38C	KNEE CIRCUMFERENCE	.393	.291	.286	.356	.299	.784	.425	.494
39C	CALF CIRCUMFERENCE	.276	.249	.264	.341	.198	.798	.313	.468
40C	ANKLE CIRC	.390	.272	.329	.465	.354	.668	.441	.378
41C	SHOULDER LENGTH	.415	.298	.323	.427	.326	.271	.427	.338
42C	INTERSCYE BACK	.327	.251	.211	.245	.262	.503	.318	.409
43C	INTERSCYE FRONT	.472	.392	.331	.437	.344	.599	.465	.522
44C	BACK ARC, BUST	.239	.226	.189	.265	.237	.714	.233	.397
45C	BACK ARC, WAIST	.192	.195	.120	.219	.237	.726	.232	.419
46C	BACK ARC, HIP	.288	.280	.256	.387	.269	.784	.324	.446
47C	WAIST BACK	.466	.303	.323	.490	.414	.330	.552	.241
48C	WAIST FRONT	.296	.174	.167	.365	.302	.345	.392	.260
49C	NECK-BUSTPOINT LGT	.198	.153	.116	.224	.208	.542	.248	.365
50C	AXILLA-WAIST LEVEL	.224	.087	.154	.338	.261	.160	.323	.110
51C	SLEEVE INSEAM	.823	.649	.631	.637	.725	.431	.772	.294
52C	SLEEVE OUTSEAM	.847	.670	.637	.658	.734	.475	.799	.330
53C	CROTCH LENGTH	.321	.162	.155	.286	.228	.625	.378	.404
54C	HEAD CIRCUMFERENCE	.299	.221	.278	.253	.179	.377	.347	.316
55C	HEAD BREADTH	.138	.070	.078	.123	.054	.266	.157	.185
56C	HEAD LENGTH	.319	.207	.299	.257	.213	.291	.350	.253

TABLE 6 CONTINUED
CORRELATIONS: CORE AND WORKSPACE SERIES (N=296)

		1W	2W	3W	4W	5W	6W	7W	8W
57C	PALM LENGTH	.609	.479	.481	.520	.485	.363	.597	.330
58C	HAND BREADTH	.473	.400	.406	.526	.416	.569	.471	.412
59C	HAND CIRCUMFERENCE	.485	.388	.389	.508	.414	.603	.489	.443
60C	HAND LENGTH	.678	.543	.552	.599	.570	.433	.664	.370
61C	INSTEP LENGTH	.649	.495	.459	.540	.599	.530	.634	.345
62C	FOOT LENGTH	.711	.545	.529	.628	.659	.546	.707	.366
63C	HEEL-ANKLE CIRC	.618	.490	.490	.593	.593	.626	.638	.410
64C	FOOT BREADTH	.405	.331	.371	.400	.298	.558	.421	.395
65C	HEEL BREADTH	.323	.339	.277	.297	.336	.478	.334	.340
66C	FOOT CIRCUMFERENCE	.477	.439	.448	.512	.412	.655	.514	.441
67C	INSTEP CIRC	.500	.443	.442	.538	.481	.640	.524	.441
68C	ANKLE HEIGHT	.525	.388	.435	.473	.556	.206	.549	.192
69C	SPHYRION HEIGHT	.397	.279	.260	.330	.313	.367	.438	.325
70C	AGE	-117	-214	-271	-157	-113	-076	-066	-036

TABLE 6 CONTINUED
CORRELATIONS: CORE AND WORKSPACE SERIES (N=296)

		9W	10W	11W	12W	13W	14W
1W	OVERHEAD REACH HT	.490	.428	.865	.803	.697	.752
2W	FUNCTIONAL REACH	.434	.366	.472	.539	.606	.408
3W	FUNCT REACH EXTEND	.423	.324	.490	.546	.545	.457
4W	OVERHEAD REACH SIT	.437	.442	.715	.614	.548	.622
5W	FUNCTIONAL LEG LTH	.480	.357	.735	.671	.660	.645
6W	WEIGHT	.294	.640	.563	.547	.525	.470
7W	STATURE	.509	.445	.955	.815	.694	.816
8W	OVERHEAD REACH BRD	.201	.618	.408	.366	.296	.382
9W	BENT TORSO HEIGHT		.392	.423	.438	.405	.449
10W	BENT TORSO BREADTH	.392		.425	.396	.402	.374
11W	KNEELING HEIGHT	.423	.425		.734	.588	.813
12W	KNEELING LEG LNGTH	.438	.396	.734		.612	.664
13W	BENT KNEE HT SUPIN	.405	.402	.588	.612		.266
14W	HORI LG KNEES BENT	.449	.374	.813	.664	.266	
1C	WEIGHT	.288	.639	.556	.535	.508	.463
2C	STATURE	.510	.446	.959	.807	.678	.828
3C	SHOULDER HEIGHT	.513	.447	.922	.805	.685	.799
4C	AXILLA HEIGHT	.520	.424	.916	.801	.692	.790
5C	BUSTPOINT HEIGHT	.509	.392	.871	.782	.678	.756
6C	WAIST HEIGHT	.542	.379	.825	.785	.668	.737
7C	CROTCH HEIGHT	.581	.370	.760	.796	.720	.701
8C	BUTTOCK HEIGHT	.560	.422	.730	.759	.707	.674
9C	KNEECAP HEIGHT	.594	.397	.746	.784	.723	.699
10C	CALF HEIGHT	.535	.417	.641	.690	.646	.600
11C	SITTING HEIGHT	.220	.348	.837	.535	.349	.669
12C	EYE HEIGHT/SIT	.187	.324	.815	.520	.333	.648
13C	SHOULDER-ELBOW L	.586	.453	.720	.723	.658	.668
14C	ELBOW-FINGERTIP	.546	.490	.654	.707	.663	.629
15C	KNEE HEIGHT/SIT	.561	.454	.759	.819	.746	.685
16C	POPLITEAL HEIGHT	.556	.389	.741	.776	.678	.711
17C	BUTTOCK-KNEE LGTH	.522	.484	.681	.693	.698	.633
18C	BUST DEPTH	.106	.430	.190	.171	.208	.193
19C	WAIST DEPTH	.089	.395	.128	.125	.260	.091
20C	CHEST BREADTH	.119	.567	.295	.282	.281	.253
21C	WAIST BREADTH	.136	.461	.310	.302	.274	.274

TABLE 6 CONTINUED
CORRELATIONS: CORE AND WORKSPACE SERIES (N=296)

		9W	10W	11W	12W	13W	14W
22C	HIP BREADTH	.147	.402	.377	.338	.271	.328
23C	SHOULDER BREADTH	.208	.736	.384	.394	.358	.339
24C	NECK CIRCUMFERENCE	.205	.506	.327	.259	.294	.258
25C	SHOULDER CIRC	.240	.721	.360	.363	.339	.321
26C	CHEST CIRC AT SCYE	.152	.616	.299	.319	.293	.262
27C	BUST CIRCUMFERENCE	.137	.519	.239	.244	.271	.223
28C	CHEST C BELOW BUST	.108	.494	.285	.281	.283	.227
29C	WAIST CIRC	.133	.483	.251	.233	.291	.211
30C	HIP CIRCUMFERENCE	.229	.506	.449	.406	.373	.380
31C	VERTICAL TRUNK CIR	.211	.502	.690	.483	.411	.557
32C	ARM CIRC AT SCYE	.186	.535	.394	.370	.370	.321
33C	BICEPS CIRC, FLXD	.121	.527	.256	.293	.273	.207
34C	ELBOW CIRC, FLXD	.198	.543	.428	.462	.453	.332
35C	FOREARM CIRC, FLXD	.190	.606	.337	.383	.392	.236
36C	WRIST CIRC	.312	.542	.518	.487	.472	.401
37C	UPPER THIGH CIRC	.143	.478	.307	.342	.340	.230
38C	KNEE CIRCUMFERENCE	.215	.450	.420	.426	.400	.327
39C	CALF CIRCUMFERENCE	.127	.445	.307	.355	.327	.216
40C	ANKLE CIRC	.203	.388	.455	.421	.395	.328
41C	SHOULDER LENGTH	.245	.425	.423	.356	.262	.398
42C	INTERSCYE BACK	.184	.445	.317	.332	.220	.295
43C	INTERSCYE FRONT	.236	.689	.438	.442	.387	.395
44C	BACK ARC, BUST	.149	.471	.223	.242	.217	.235
45C	BACK ARC, WAIST	.108	.456	.245	.208	.226	.212
46C	BACK ARC, HIP	.196	.451	.334	.314	.317	.269
47C	WAIST BACK	.179	.285	.603	.372	.306	.485
48C	WAIST FRONT	.108	.283	.435	.256	.221	.345
49C	NECK-BUSTPOINT LGT	.116	.314	.282	.187	.134	.266
50C	AXILLA-WAIST LEVEL	.072	.187	.390	.161	.159	.274
51C	SLEEVE INSEAM	.601	.402	.654	.700	.675	.606
52C	SLEEVE OUTSEAM	.600	.438	.689	.716	.679	.637
53C	CROTCH LENGTH	.139	.284	.402	.312	.258	.320
54C	HEAD CIRCUMFERENCE	.260	.430	.315	.327	.263	.264
55C	HEAD BREADTH	.015	.265	.174	.113	.063	.125
56C	HEAD LENGTH	.263	.333	.319	.336	.252	.267

TABLE 6 CONTINUED

|		9W	10W	11W	12W	13W	14W
57C	PALM LENGTH	.353	.399	.530	.542	.528	.487
58C	HAND BREADTH	.329	.498	.437	.473	.434	.367
59C	HAND CIRCUMFERENCE	.321	.516	.463	.503	.429	.396
60C	HAND LENGTH	.449	.440	.583	.628	.585	.546
61C	INSTEP LENGTH	.438	.464	.566	.593	.535	.562
62C	FOOT LENGTH	.492	.485	.629	.671	.606	.608
63C	HEEL-ANKLE CIRC	.397	.499	.565	.574	.611	.477
64C	FOOT BREADTH	.223	.423	.380	.448	.437	.295
65C	HEEL BREADTH	.252	.431	.257	.320	.392	.229
66C	FOOT CIRCUMFERENCE	.307	.498	.467	.517	.483	.396
67C	INSTEP CIRC	.302	.520	.465	.512	.517	.392
68C	ANKLE HEIGHT	.321	.240	.484	.428	.402	.491
69C	SPHYRION HEIGHT	.115	.258	.425	.387	.367	.292
70C	AGE	-055	-042	-011	-163	-183	.067

THE VISUAL INDEX
HEAD - FACE SERIES
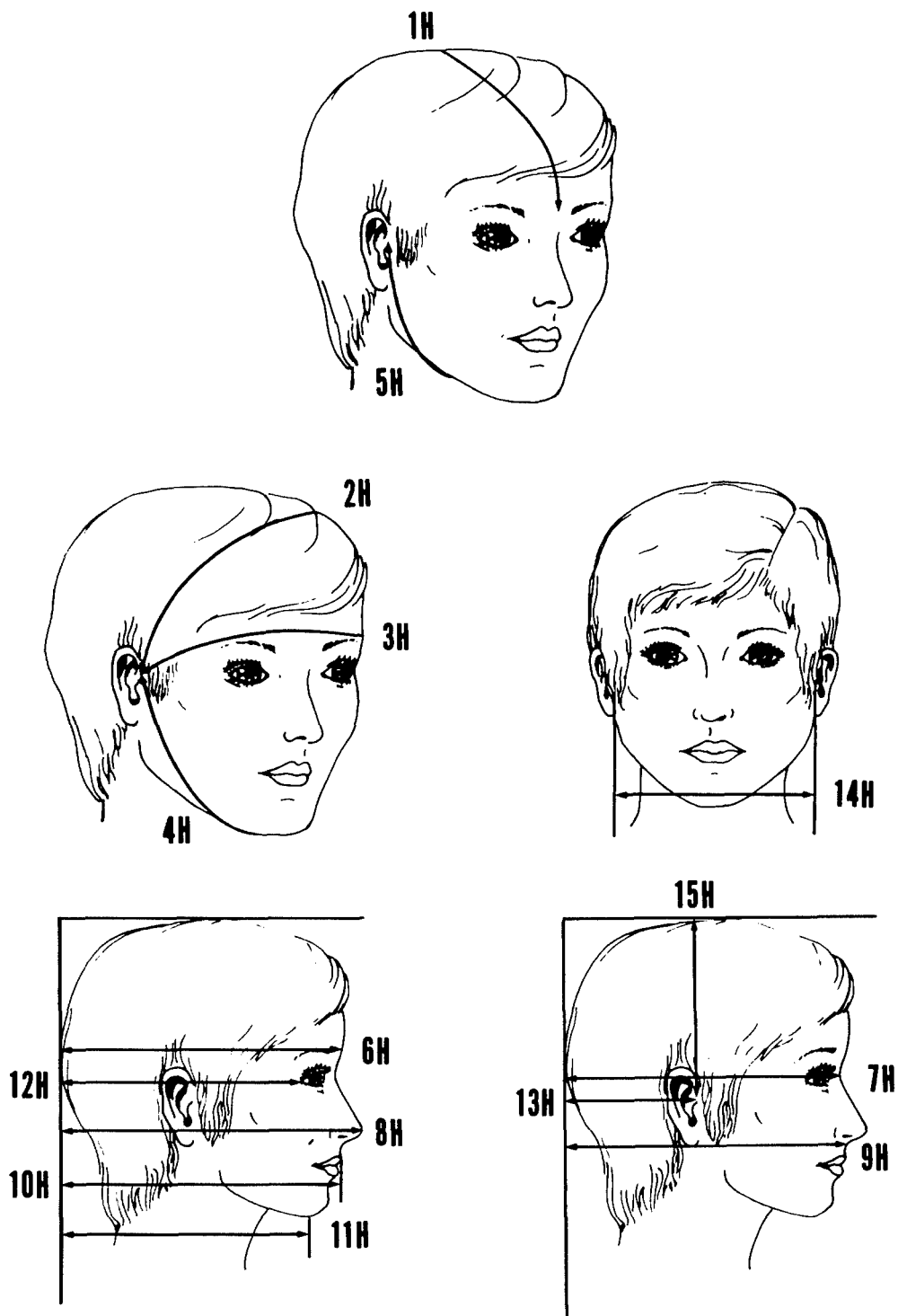
Figure 4. The visual index: head-face series.

1H SAGITTAL ARC: distance over the top of the head from glabella (the most anterior point between the brow ridges) to nuchale (the lowest point palpable at the base of the occiput) measured with the tape as close to the scalp as possible.

2H BITRAGION-CORONAL ARC: distance from right tragion (the notch just forward of the ear hole) to left tragion, measured across the top of the head.

3H BITRAGION-FRONTAL ARC: distance from right tragion (the notch just forward of the ear hole) to left tragion measured across the forehead.

4H BITRAGION-MENTON ARC: distance from right tragion (the notch just forward of the ear hole) to left tragion measured with the tape passing under the tip of the chin.

5H BITRAGION-SUBMANDIBULAR ARC: distance from right tragion (the notch just forward of the ear hole) to left tragion measured with the tape passing under the gonial angles of the jaw and over the jaw-neck juncture.

6H GLABELLA TO WALL: distance from the most anterior point between the brow ridges to the coronal plane tangent to the back of the head.

7H SELLION TO WALL: distance from the deepest point in the nasal root depression to the coronal plane tangent to the back of the head.

8H PRONASALE TO WALL: distance from the tip of the nose to the coronal plane tangent to the back of the head.

9H SUBNASALE TO WALL: distance from the base of the nasal septum to the coronal plane tangent to the back of the head.

10H LIP PROTRUSION TO WALL: distance from the most anterior point of the lips to the coronal plane tangent to the back of the head.

11H MENTON TO WALL: distance from tip of the chin to back of the head.

12H ECTOCANTHUS TO WALL: distance from the outer corner of the scye to the coronal plane tangent to the back of the head.

13H TRAGION TO WALL: distance from the cartilaginous notch just forward of the ear hole to the coronal plane tangent to the back of the head.

14H BITRAGION BREADTH: breadth of the head between the notches just forward of the ear holes.

15H HEAD HEIGHT (TRAGION-VERTEX): distance from the cartilaginous notch just forward of the ear hole to the level of the top of the head.

THE VISUAL INDEX
HEAD - FACE SERIES (CONT.)

16H   17H 19H

21H

18H

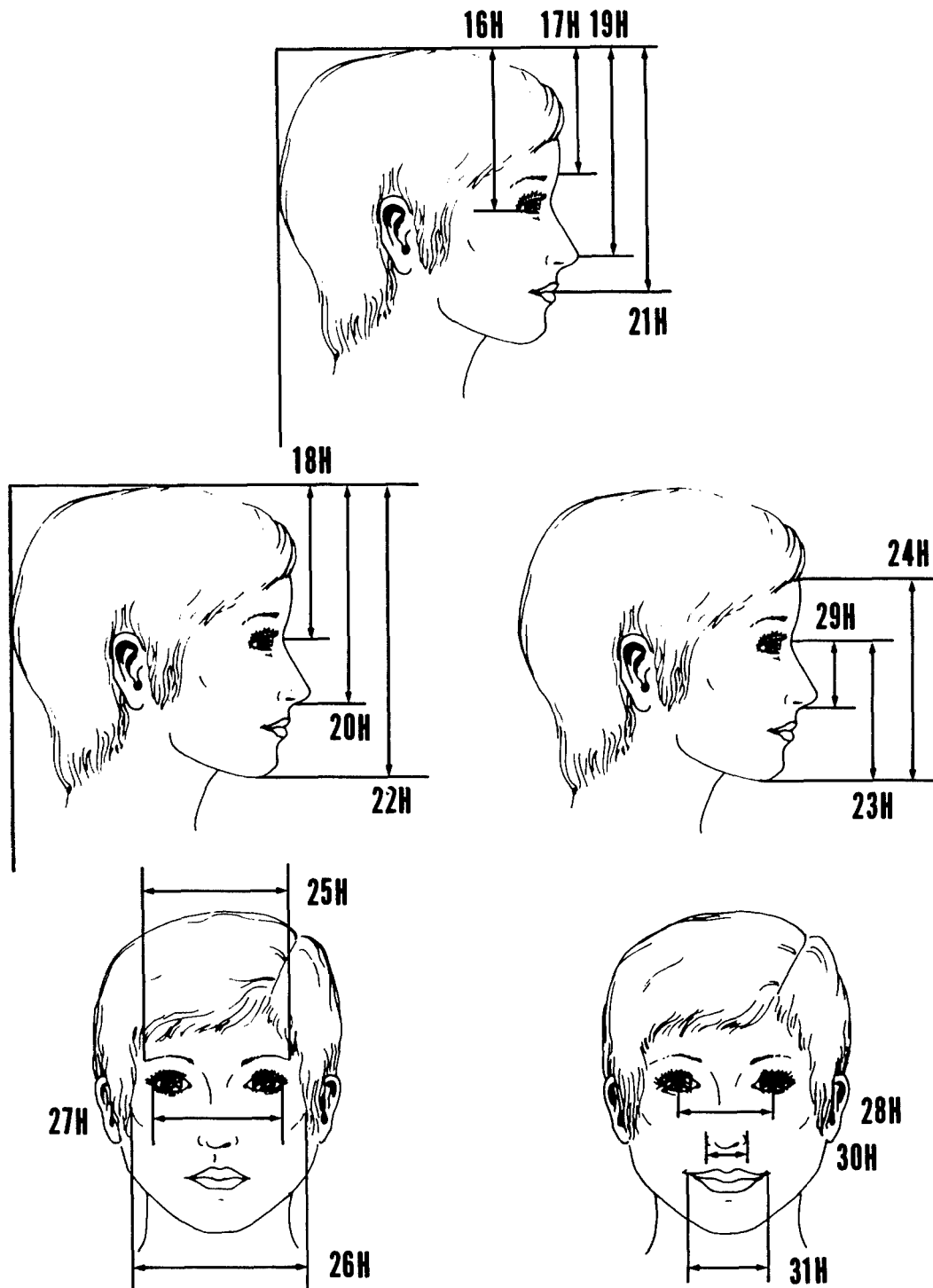20H

22H

24H

29H

23H

25H

27H

26H

28H

30H

31H

Figure 4.   The visual index: head-face series (continued).

16H ECTOCANTHUS TO VERTEX: distance from the outer corner of the eye to the level of the top of the head.

17H GLABELLA TO VERTEX: distance from the most anterior point between the brow ridges to top of the head.

18H SELLION TO VERTEX: distance from the deepest point in the nasal root depression to top of the head.

19H PRONASALE TO VERTEX: distance from tip of the nose to top of the head.

20H SUBNASALE TO VERTEX: distance from the base of the nasal septum to the level of the top of the head.

21H STOMION TO VERTEX: distance from the point of contact of the lips in the midsagittal plane to top of the head.

22H MENTON TO VERTEX: distance from tip of the chin to the level of the top of the head.

23H FACE LENGTH (SELLION-MENTON): vertical distance from the deepest point in the nasal root depression to tip of the chin.

24H CRINION-MENTON: vertical distance from tip of the chin to the midsagittal point of the hairline.

25H MINIMUM FRONTAL BREADTH: breadth of the forehead between the greatest indentations of the temporal crests above the brow ridges.

26H FACE BREADTH (BIZYGOMATIC): breadth of the face across the zygomatic arches.

27H BIOCULAR BREADTH: distance between the outer corners of the eyes.

28H INTERPUPILLARY DISTANCE: distance between the centers of the pupils.

29H NOSE LENGTH: distance from the lowest point in the nasal root depression to the base of the nasal septum.

30H NOSE BREADTH: maximum breadth of the nose.

31H MOUTH BREADTH, SMILING: distance between the corners of the mouth measured while the subject smiles broadly.

TABLE 7A
SUMMARY STATISTICS AND SELECTED PERCENTILES
HEAD-FACE SERIES (N=215)

| METRIC UNITS* | MEAN | SD | PERCENTILES | | | | | | | | |
			1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
1H SAGITTAL ARC	33.63	1.55	30.6	31.1	31.7	32.5	33.6	34.6	35.6	36.1	38.2
2H BITRAG-CORONAL ARC	33.22	1.28	30.5	31.3	31.7	32.3	33.2	34.0	34.9	35.4	36.4
3H BITRAG-FRONTAL ARC	28.39	1.01	26.0	26.7	27.1	27.7	28.4	29.1	29.7	30.1	30.7
4H BITRAG-MENTON ARC	29.34	1.30	26.3	27.3	27.7	28.5	29.3	30.2	31.0	31.6	32.7
5H BITRAG-SUBMAN ARC	26.48	1.34	23.5	24.5	24.9	25.5	26.4	27.4	28.3	28.8	29.5
6H GLABELLA-WALL	19.25	.99	17.1	17.8	18.1	18.6	19.1	19.8	20.5	21.1	22.2
7H SELLION-WALL	20.16	.96	18.1	18.8	19.1	19.5	20.0	20.7	21.4	22.0	23.0
8H PRONASALE-WALL	21.49	.97	19.4	20.1	20.4	20.8	21.4	22.1	22.8	23.2	24.2
9H SUBNASALE-WALL	20.10	1.00	18.0	18.6	18.9	19.4	20.0	20.7	21.4	21.9	23.0
10H STOMION-WALL	20.10	1.16	18.0	18.5	18.8	19.3	20.0	20.7	21.6	22.2	23.7
11H MENTON-WALL	19.47	1.10	17.2	17.8	18.2	18.7	19.4	20.1	20.9	21.4	22.4
12H ECTOCANTHUS-WALL	17.17	.93	15.3	15.8	16.1	16.5	17.1	17.7	18.4	18.8	20.0
13H TRAGION-WALL	10.06	.91	8.6	8.8	9.0	9.4	9.9	10.6	11.2	11.7	12.9
14H BITRAGION BREADTH	12.97	.53	11.6	12.1	12.3	12.6	13.0	13.3	13.7	13.9	14.2
15H TRAGION-VERTEX	13.19	.67	11.8	12.1	12.3	12.7	13.2	13.6	14.0	14.3	14.8
16H ECTOCANTHUS-VERTEX	12.13	.80	10.2	10.8	11.1	11.6	12.1	12.7	13.1	13.4	13.7
17H GLABELLA-VERTEX	8.44	.87	6.7	7.1	7.4	7.8	8.4	9.0	9.5	9.9	10.6
18H SELLION-VERTEX	10.06	.93	8.0	8.6	8.9	9.5	10.1	10.7	11.2	11.5	12.1
19H PRONASALE-VERTEX	13.56	.99	11.4	11.9	12.3	12.9	13.6	14.2	14.8	15.1	15.7
20H SUBNASALE-VERTEX	14.80	.95	12.6	13.3	13.7	14.2	14.8	15.4	16.0	16.4	16.9
21H STOMION-VERTEX	16.84	1.01	14.7	15.2	15.6	16.2	16.8	17.5	18.0	18.4	19.1
22H MENTON-VERTEX	20.88	1.02	18.7	19.3	19.6	20.2	20.8	21.6	22.2	22.6	23.2
23H SELLION-MENTON	10.69	.57	9.5	9.9	10.0	10.3	10.6	11.1	11.5	11.8	12.1
24H CRINION-MENTON	17.57	.82	15.7	16.2	16.5	17.0	17.6	18.1	18.6	18.9	19.5
25H MINIMUM-FRONTAL BR	10.52	.51	9.5	9.7	9.9	10.2	10.5	10.9	11.2	11.4	11.8

*WEIGHT IN KILOGRAMS; ALL OTHER MEASUREMENTS IN CENTIMETERS

TABLE 7A CONTINUED

SUMMARY STATISTICS AND SELECTED PERCENTILES
HEAD-FACE SERIES (N=215)

METRIC UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
26H FACE BREADTH	13.20	.53	11.9	12.3	12.5	12.9	13.2	13.6	13.8	14.0	14.6
27H BIOCULAR BREADTH	9.62	.50	8.5	8.8	9.0	9.3	9.6	10.0	10.3	10.5	10.8
28H INTERPUPILLARY DIS	5.82	.44	4.8	5.1	5.2	5.5	5.8	6.1	6.4	6.5	6.9
29H SELLION-SUBNASALE	4.58	.33	3.8	4.1	4.2	4.4	4.6	4.8	5.0	5.2	5.4
30H NOSE BREADTH	3.41	.45	2.6	2.9	3.0	3.1	3.3	3.6	4.1	4.3	4.6
31H MOUTH BR, SMILING	5.88	.56	4.7	5.0	5.1	5.5	5.9	6.3	6.6	6.8	7.1
1C WEIGHT	60.05	7.99	45.0	47.6	49.9	54.3	59.7	65.1	70.5	74.2	83.0
2C STATURE	162.71	6.47	148.4	151.4	153.7	158.1	163.0	167.4	170.9	172.9	176.8
54C HEAD CIRCUMFERENCE	55.03	1.78	51.1	52.3	52.9	53.8	54.9	56.1	57.3	58.1	59.8
55C HEAD BREADTH	14.62	.54	13.4	13.7	13.9	14.3	14.6	14.9	15.3	15.5	16.1
56C HEAD LENGTH	18.73	.74	17.0	17.5	17.8	18.2	18.7	19.2	19.6	19.9	20.7
70C AGE	22.63	4.56	18.0	18.2	18.4	19.1	21.3	24.8	28.7	31.6	37.9

*WEIGHT IN KILOGRAMS; ALL OTHER MEASUREMENTS IN CENTIMETERS
AGE IN YEARS

TABLE 7B
SUMMARY STATISTICS AND SELECTED PERCENTILES
HEAD-FACE SERIES (N=215)

ENGLISH UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
1H SAGITTAL ARC	13.24	.61	12.0	12.3	12.5	12.8	13.2	13.6	14.0	14.2	15.1
2H BITRAG-CORONAL ARC	13.08	.50	12.0	12.3	12.5	12.7	13.1	13.4	13.7	13.9	14.3
3H BITRAG-FRONTAL ARC	11.18	.40	10.2	10.5	10.7	10.9	11.2	11.4	11.7	11.8	12.1
4H BITRAG-MENTON ARC	11.55	.51	10.4	10.7	10.9	11.2	11.5	11.9	12.2	12.4	12.9
5H BITRAG-SUBMAN ARC	10.42	.53	9.2	9.6	9.8	10.0	10.4	10.8	11.2	11.4	11.6
6H GLABELLA-WALL	7.58	.39	6.7	7.0	7.1	7.3	7.5	7.8	8.1	8.3	8.7
7H SELLION-WALL	7.94	.38	7.1	7.4	7.5	7.7	7.9	8.1	8.4	8.6	9.1
8H PRONASALE-WALL	8.46	.38	7.6	7.9	8.0	8.2	8.4	8.7	9.0	9.1	9.5
9H SUBNASALE-WALL	7.91	.39	7.1	7.3	7.5	7.6	7.9	8.1	8.4	8.6	9.0
10H STOMION-WALL	7.91	.46	7.1	7.3	7.4	7.6	7.9	8.2	8.5	8.8	9.3
11H MENTON-WALL	7.66	.43	6.8	7.0	7.1	7.4	7.6	7.9	8.2	8.4	8.8
12H ECTOCANTHUS-WALL	6.76	.37	6.0	6.2	6.3	6.5	6.7	7.0	7.2	7.4	7.9
13H TRAGION-WALL	3.96	.36	3.4	3.5	3.5	3.7	3.9	4.2	4.4	4.6	5.1
14H BITRAGION BREADTH	5.11	.21	4.6	4.8	4.8	5.0	5.1	5.2	5.4	5.5	5.6
15H TRAGION-VERTEX	5.19	.26	4.6	4.8	4.9	5.0	5.2	5.4	5.5	5.6	5.8
16H ECTOCANTHUS-VERTEX	4.78	.32	4.0	4.3	4.4	4.6	4.8	5.0	5.2	5.3	5.4
17H GLABELLA-VERTEX	3.32	.34	2.6	2.8	2.9	3.1	3.3	3.5	3.7	3.9	4.2
18H SELLION-VERTEX	3.96	.37	3.2	3.4	3.5	3.7	4.0	4.2	4.4	4.5	4.8
19H PRONASALE-VERTEX	5.34	.39	4.5	4.7	4.8	5.1	5.3	5.6	5.8	6.0	6.2
2JH SUBNASALE-VERTEX	5.83	.37	5.0	5.3	5.4	5.6	5.8	6.1	6.3	6.4	6.7
21H STOMION-VERTEX	6.63	.40	5.8	6.0	6.1	6.4	6.6	6.9	7.1	7.2	7.5
22H MENTON-VERTEX	8.22	.40	7.3	7.6	7.7	7.9	8.2	8.5	8.7	8.9	9.2
23H SELLION-MENTON	4.21	.22	3.7	3.9	3.9	4.0	4.2	4.4	4.5	4.6	4.8
24H CRINION-MENTON	6.92	.32	6.2	6.4	6.5	6.7	6.9	7.1	7.3	7.4	7.7
25H MINIMUM-FRONTAL BR	4.14	.20	3.7	3.8	3.9	4.0	4.1	4.3	4.4	4.5	4.7

*WEIGHT IN POUNDS; ALL OTHER MEASUREMENTS IN INCHES

TABLE 7B CONTINUED
SUMMARY STATISTICS AND SELECTED PERCENTILES
HEAD-FACE SERIES (N=215)

ENGLISH UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
							PERCENTILES				
26H FACE BREADTH	5.20	.21	4.7	4.8	4.9	5.1	5.2	5.3	5.4	5.5	5.7
27H BIOCULAR BREADTH	3.79	.20	3.4	3.5	3.5	3.6	3.8	3.9	4.1	4.1	4.2
28H INTERPUPILLARY DIS	2.29	.17	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
29H SELLION-SUBNASALE	1.80	.13	1.5	1.6	1.7	1.7	1.8	1.9	2.0	2.3	2.1
30H NOSE BREADTH	1.34	.18	1.0	1.1	1.2	1.2	1.3	1.4	1.6	1.7	1.8
31H MOUTH BR, SMILING	2.31	.22	1.8	2.0	2.0	2.2	2.3	2.5	2.6	2.7	2.8
1C WEIGHT	132.38	17.61	99.2	104.9	109.9	119.8	131.5	143.6	155.4	163.5	183.0
2C STATURE	64.06	2.55	58.4	59.6	60.5	62.3	64.2	65.9	67.3	68.1	69.6
54C HEAD CIRCUMFERENCE	21.66	.70	20.1	20.6	20.8	21.2	21.6	22.1	22.6	22.9	23.5
55C HEAD BREADTH	5.75	.21	5.3	5.4	5.5	5.6	5.7	5.9	6.0	6.1	6.4
56C HEAD LENGTH	7.37	.29	6.7	6.9	7.0	7.2	7.4	7.5	7.7	7.9	8.1
73C AGE	22.63	4.56	18.0	18.2	18.4	19.1	21.3	24.8	28.7	31.6	37.9

*WEIGHT IN POUNDS; ALL OTHER MEASUREMENTS IN INCHES
AGE IN YEARS

TABLE 6
CORRELATIONS: HEAD & FACE SERIES (N=215)

		1H	2H	3H	4H	5H	6H	7H	8H
1H	SAGITTAL ARC		.516	.375	.271	.220	.519	.509	.444
2H	BITRAG-CORONAL ARC	.516		.567	.292	.215	.388	.382	.366
3H	BITRAG-FRONTAL ARC	.375	.567		.537	.471	.476	.466	.458
4H	BITRAG-MENTON ARC	.271	.292	.537		.713	.462	.444	.435
5H	BITRAG-SUBMAN ARC	.220	.215	.471	.713		.292	.271	.250
6H	GLABELLA-WALL	.519	.388	.476	.462	.292		.982	.913
7H	SELLION-WALL	.509	.382	.466	.444	.271	.982		.949
8H	PRONASALE-WALL	.444	.366	.458	.435	.250	.913	.949	
9H	SUBNASALE-WALL	.399	.358	.396	.448	.215	.889	.921	.967
10H	STOMION-WALL	.357	.366	.356	.479	.205	.833	.853	.896
11H	MENTON-WALL	.300	.332	.376	.487	.211	.708	.748	.812
12H	ECTOCANTHUS-WALL	.397	.345	.390	.468	.280	.904	.888	.845
13H	TRAGION-WALL	.311	.322	.180	.250	.069	.787	.789	.776
14H	BITRAGION BREADTH	.083	.271	.461	.553	.546	.144	.133	.141
15H	TRAGION-VERTEX	.496	.687	.405	.140	.166	.378	.378	.328
16H	ECTOCANTHUS-VERTEX	.516	.446	.256	.294	.300	.454	.388	.242
17H	GLABELLA-VERTEX	.513	.374	.215	.257	.256	.432	.366	.208
18H	SELLION-VERTEX	.485	.377	.239	.331	.340	.464	.387	.214
19H	PRONASALE-VERTEX	.534	.388	.330	.353	.365	.503	.445	.287
20H	SUBNASALE-VERTEX	.529	.402	.340	.369	.373	.486	.435	.291
21H	STOMION-VERTEX	.545	.443	.340	.415	.419	.531	.477	.339
22H	MENTON-VERTEX	.538	.503	.399	.502	.431	.527	.485	.387
23H	SELLION-MENTON	.299	.347	.366	.399	.353	.278	.313	.348
24H	CRINION-MENTON	.236	.315	.408	.460	.350	.361	.367	.341
25H	MINIMUM-FRONTAL BR	.219	.420	.481	.434	.443	.241	.235	.227
26H	FACE BREADTH	.094	.435	.558	.653	.648	.269	.249	.255
27H	BIOCULAR BREADTH	.105	.339	.429	.470	.361	.333	.316	.331
28H	INTERPUPILLARY DIS	.243	.247	.290	.374	.293	.343	.333	.321
29H	SELLION-SUBNASALE	.192	.087	.261	.132	.224	.106	.167	.238
30H	NOSE BREADTH	.165	.259	.144	.468	.248	.422	.387	.382
31H	MOUTH BR SMILING	.065	.194	.204	.354	.317	.248	.251	.261
1C	WEIGHT	.285	.381	.440	.480	.507	.365	.361	.381
2C	STATURE	.313	.300	.400	.312	.252	.263	.280	.336
54C	HEAD CIRCUMFERENCE	.606	.587	.608	.541	.405	.771	.761	.714
55C	HEAD BREADTH	.184	.542	.396	.360	.352	.267	.258	.248
56C	HEAD LENGTH	.643	.339	.526	.430	.291	.771	.760	.697
70C	AGE	.043	.021	.056	.053	.222	.110	.113	.092

TABLE 8 CONTINUED
CORRELATIONS: HEAD & FACE SERIES (N=215)

		9H	10H	11H	12H	13H	14H	15H	16H
1H	SAGITTAL ARC	.399	.357	.300	.397	.311	.083	.496	.516
2H	BITRAG-CORONAL ARC	.358	.366	.332	.345	.322	.271	.687	.446
3H	BITRAG-FRONTAL ARC	.396	.356	.375	.390	.180	.461	.405	.256
4H	BITRAG-MENTON ARC	.448	.479	.487	.468	.250	.553	.140	.294
5H	BITRAG-SUBMAN ARC	.215	.205	.211	.280	.069	.546	.166	.300
6H	GLABELLA-WALL	.889	.833	.708	.904	.787	.144	.378	.454
7H	SELLION-WALL	.921	.853	.748	.888	.789	.133	.378	.388
8H	PRONASALE-WALL	.967	.896	.812	.845	.776	.141	.328	.242
9H	SUBNASALE-WALL		.962	.870	.858	.820	.128	.314	.223
10H	STOMION-WALL	.962		.902	.829	.825	.135	.282	.198
11H	MENTON-WALL	.870	.902		.710	.705	.171	.239	.034
12H	ECTOCANTHUS-WALL	.858	.829	.710		.841	.195	.257	.349
13H	TRAGION-WALL	.820	.825	.705	.841		-.011	.283	.232
14H	BITRAGION BREADTH	.128	.135	.171	.195	-.011		.072	.110
15H	TRAGION-VERTEX	.314	.282	.239	.257	.283	.072		.662
16H	ECTOCANTHUS-VERTEX	.223	.198	.034	.349	.232	.110	.662	
17H	GLABELLA-VERTEX	.184	.160	-.005	.280	.227	.089	.528	.887
18H	SELLION-VERTEX	.194	.163	.004	.409	.218	.166	.474	.908
19H	PRONASALE-VERTEX	.231	.172	.002	.392	.244	.207	.488	.869
20H	SUBNASALE-VERTEX	.234	.175	.000	.362	.232	.217	.503	.862
21H	STOMION-VERTEX	.304	.250	.036	.452	.282	.226	.506	.862
22H	MENTON-VERTEX	.353	.324	.111	.443	.318	.255	.553	.785
23H	SELLION-MENTON	.307	.252	.149	.283	.184	.183	.284	.148
24H	CRINION-MENTON	.362	.363	.268	.378	.269	.343	.201	.169
25H	MINIMUM-FRONTAL BR	.208	.239	.231	.238	.154	.315	.307	.309
26H	FACE BREADTH	.248	.276	.274	.317	.147	.785	.208	.205
27H	BIOCULAR BREADTH	.388	.449	.385	.358	.307	.327	.134	.121
28H	INTERPUPILLARY DIS	.353	.394	.315	.367	.311	.152	.189	.224
29H	SELLION-SUBNASALE	.139	.017	-.007	.066	-.013	.244	.099	-.017
30H	NOSE BREADTH	.476	.590	.430	.520	.448	.196	.092	.262
31H	MOUTH BR SMILING	.288	.321	.313	.269	.197	.153	.153	.154
1C	WEIGHT	.332	.305	.340	.308	.215	.354	.320	.208
2C	STATURE	.243	.167	.192	.224	.130	.200	.294	.177
54C	HEAD CIRCUMFERENCE	.675	.653	.572	.739	.575	.322	.493	.473
55C	HEAD BREADTH	.233	.235	.255	.308	.255	.551	.357	.235
56C	HEAD LENGTH	.632	.575	.499	.654	.504	.131	.371	.395
70C	AGE	.048	.070	.039	.106	.057	.224	.024	.047

TABLE 8 CONTINUED
CORRELATIONS: HEAD & FACE SERIES (N=215)

		17H	18H	19H	20H	21H	22H	23H	24H
1H	SAGITTAL ARC	.513	.485	.534	.529	.545	.538	.299	.236
2H	BITRAG-CORONAL ARC	.374	.377	.388	.402	.443	.503	.347	.315
3H	BITRAG-FRONTAL ARC	.215	.239	.330	.340	.340	.399	.366	.408
4H	BITRAG-MENTON ARC	.257	.331	.353	.369	.415	.502	.399	.460
5H	BITRAG-SUBMAN ARC	.256	.340	.365	.373	.419	.431	.353	.350
6H	GLABELLA-WALL	.432	.464	.503	.486	.531	.527	.278	.361
7H	SELLION-WALL	.366	.387	.445	.435	.477	.485	.313	.367
8H	PRONASALE-WALL	.208	.214	.287	.291	.339	.387	.348	.341
9H	SUBNASALE-WALL	.184	.194	.231	.234	.304	.353	.307	.362
10H	STOMION-WALL	.160	.163	.172	.175	.250	.324	.252	.363
11H	MENTON-WALL	-005	.004	.002	.000	.036	.111	.140	.268
12H	ECTOCANTHUS-WALL	.280	.409	.392	.362	.452	.443	.283	.378
13H	TRAGION-WALL	.227	.218	.244	.232	.282	.318	.184	.269
14H	BITRAGION BREADTH	.089	.166	.207	.217	.226	.255	.183	.343
15H	TRAGION-VERTEX	.528	.474	.488	.503	.506	.553	.284	.201
16H	ECTOCANTHUS-VERTEX	.887	.908	.869	.862	.862	.785	.148	.169
17H	GLABELLA-VERTEX		.879	.880	.888	.829	.746	.076	.074
18H	SELLION-VERTEX	.879		.898	.883	.894	.768	.112	.162
19H	PRONASALE-VERTEX	.880	.898		.977	.934	.841	.268	.273
20H	SUBNASALE-VERTEX	.888	.863	.977		.947	.862	.295	.282
21H	STOMION-VERTEX	.829	.894	.934	.947		.916	.406	.378
22H	MENTON-VERTEX	.746	.768	.841	.862	.916		.582	.465
23H	SELLION-MENTON	.076	.112	.268	.295	.406	.582		.622
24H	CRINION-MENTON	.074	.162	.273	.282	.378	.465	.622	
25H	MINIMUM-FRONTAL BR	.259	.265	.250	.255	.270	.305	.209	.223
26H	FACE BREADTH	.189	.234	.262	.279	.310	.342	.280	.377
27H	BIOCULAR BREADTH	.072	.135	.124	.133	.229	.255	.220	.345
28H	INTERPUPILLARY DIS	.211	.254	.213	.233	.296	.309	.243	.217
29H	SELLION-SUBNASALE	-019	-037	.248	.275	.233	.274	.561	.325
30H	NOSE BREADTH	.168	.297	.235	.237	.365	.383	.202	.345
31H	MOUTH BR SMILING	.098	.153	.096	.132	.183	.188	.120	.236
1C	WEIGHT	.146	.180	.179	.178	.219	.279	.322	.268
2C	STATURE	.151	.156	.234	.245	.235	.301	.366	.220
54C	HEAD CIRCUMFERENCE	.408	.460	.488	.489	.539	.570	.388	.408
55C	HEAD BREADTH	.182	.218	.257	.267	.282	.294	.239	.321
56C	HEAD LENGTH	.364	.391	.460	.453	.483	.517	.360	.379
70C	AGE	.018	.081	.106	.088	.102	.073	.028	.047

TABLE 8 CONTINUED
CORRELATIONS: HEAD & FACE SERIES (N=215)

		25H	26H	27H	28H	29H	30H	31H
1H	SAGITTAL ARC	.219	.094	.105	.243	.102	.165	.065
2H	BITRAG-CORONAL ARC	.420	.435	.339	.247	.087	.259	.194
3H	BITRAG-FRONTAL ARC	.481	.558	.429	.290	.261	.144	.204
4H	BITRAG-MENTON ARC	.434	.653	.470	.374	.132	.468	.354
5H	BITRAG-SUBMAN ARC	.443	.648	.361	.293	.224	.248	.317
6H	GLABELLA-WALL	.241	.269	.333	.343	.106	.422	.248
7H	SELLION-WALL	.235	.249	.316	.333	.167	.387	.251
8H	PRONASALE-WALL	.227	.255	.331	.321	.238	.382	.261
9H	SUBNASALE-WALL	.208	.248	.388	.353	.139	.476	.288
10H	STOMION-WALL	.239	.276	.449	.394	.017	.590	.321
11H	MENTON-WALL	.231	.274	.385	.315	-007	.430	.313
12H	ECTOCANTHUS-WALL	.238	.317	.358	.367	.066	.520	.269
13H	TRAGION-WALL	.154	.147	.307	.311	-013	.448	.197
14H	BITRAGION BREADTH	.315	.785	.327	.152	.244	.196	.153
15H	TRAGION-VERTEX	.307	.208	.134	.189	.099	.092	.153
16H	ECTOCANTHUS-VERTEX	.309	.205	.121	.224	-017	.262	.154
17H	GLABELLA-VERTEX	.259	.189	.072	.211	-019	.168	.098
18H	SELLION-VERTEX	.265	.234	.135	.254	-037	.297	.153
19H	PRONASALE-VERTEX	.250	.262	.124	.213	.248	.235	.096
20H	SUBNASALE-VERTEX	.255	.279	.133	.233	.275	.237	.132
21H	STOMION-VERTEX	.270	.310	.229	.296	.233	.365	.183
22H	MENTON-VERTEX	.305	.342	.255	.309	.274	.383	.188
23H	SELLION-MENTON	.209	.280	.220	.243	.561	.202	.120
24H	CRINION-MENTON	.223	.377	.345	.217	.325	.345	.236
25H	MINIMUM-FRONTAL BR		.625	.472	.561	-020	.242	.373
26H	FACE BREADTH	.625		.533	.418	.143	.319	.351
27H	BIOCULAR BREADTH	.472	.533		.595	-006	.548	.439
28H	INTERPUPILLARY DIS	.561	.418	.595		-065	.448	.398
29H	SELLION-SUBNASALE	-020	.143	-006	-065		-095	-037
30H	NOSE BREADTH	.242	.319	.548	.448	-095		.440
31H	MOUTH BR SMILING	.373	.351	.439	.398	-037	.440	
1C	WEIGHT	.351	.468	.249	.195	.121	.112	.183
2C	STATURE	.259	.226	.085	.179	.370	-031	.029
54C	HEAD CIRCUMFERENCE	.464	.455	.405	.461	.102	.403	.313
55C	HEAD BREADTH	.496	.654	.316	.271	.122	.203	.246
56C	HEAD LENGTH	.257	.193	.289	.327	.177	.245	.217
70C	AGE	.086	.194	-044	.054	.095	.130	.103
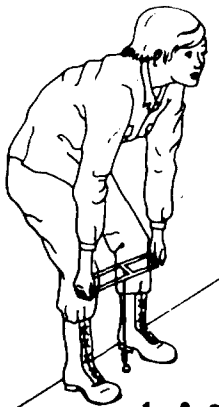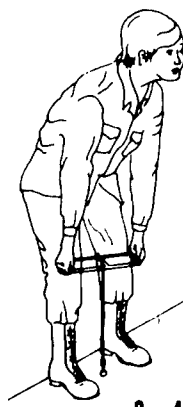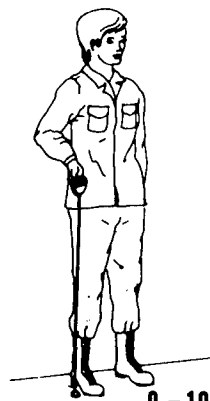
THE VISUAL INDEX
STRENGTH SERIES

Figure 5. The visual index: strength series.

1-2S*   STANDING TWO-HANDED PULL - 38 cm Level: with feet 45 cm apart and knees bent, subject bends at the waist and grasps both sides of the handle directly in front of her. She attempts to lift the handle, primarily using arms and shoulders but also using her legs by extending them upwards.

3-4S   STANDING TWO-HANDED PULL - 50 cm Level: with feet 45 cm apart and knees straight, subject bends at the waist and grasps both sides of the handle directly in front of her. She attempts to lift the handle, primarily using the arms and shoulders.

5-6S   STANDING TWO-HANDED PULL - 100 cm Level: with feet 45 cm apart, subject grasps both sides of the handle directly in front of her. She attempts to lift the handle using her arms, keeping knees straight and feet firmly planted.

7-8S   STANDING TWO-HANDED PUSH - 150 cm Level: with feet 45 cm apart, subject grasps, from below, both sides of the handle directly in front of her. She attempts to push the handle straight upward using arms and shoulders, keeping knees straight and feet firmly planted.

9-10S   STANDING ONE-HANDED PULL - 100 cm Level (D-RING): with feet 15 cm apart, subject grasps, from the underside, with her dominant hand, the D-ring attached at a point just to the right (or left) of her body. She attempts to lift the D-ring, primarily using her arm, keeping shoulders square, feet firmly planted, and her other arm relaxed at her side.

11-12S   SEATED ONE-HANDED PULL, CENTERLINE OF SEAT - 45 cm Level (D-RING): subject sits erect, feet 55 cm apart. With her dominant hand, she grasps, from the underside, the D-ring attached just forward of the chair in its vertical midplane. She attempts to lift the D-ring, keeping shoulders square, feet firmly planted, and her other arm in her lap.

13-14S   SEATED ONE-HANDED PULL, SIDE OF SEAT - 45 cm Level (D-RING): subject sits erect, feet 55 cm apart. With her dominant hand, she grasps, from the underside, the D-ring attached a short distance to the right (or left) of the point midway between the maximal protrusion of the buttock and knee. She attempts to lift the D-ring keeping shoulders square, her feet firmly planted, and her other arm in her lap.

15-16S   SEATED TWO-HANDED PULL, CENTERLINE OF SEAT - 38 cm Level (SHORT HANDLE): Subject sits erect, feet 55 cm apart. She bends slightly at the waist and grasps both sides of the handle attached just forward of the chair and in its vertical midplane. She attempts to lift the handle, primarily using arms and shoulders, keeping feet flat and arms off her thighs.

17-18S   SEATED TWO-HANDED PULL, CENTERLINE OF SEAT - 50 cm Level (SHORT HANDLE): Subject sits erect, feet 55 cm apart. She bends slightly at the waist and grasps both sides of the handle attached just forward of the chair and in its vertical midplane. She attempts to lift the handle, primarily using arms and shoulders, keeping feet flat and arms off her thighs.

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* The first of each pair of numbers represents the average value and the second represents the peak value for each measurement.

TABLE 9A
SUMMARY STATISTICS AND SELECTED PERCENTILES
STATIC STRENGTH SERIES (N=344)

METRIC UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
1S STAND TWO-H 38 A1	60.15	15.17	27.7	35.4	40.5	49.6	59.8	69.8	79.2	85.5	100.1
2S STAND TWO-H 38 P1	66.77	15.50	33.3	41.9	47.0	56.1	66.5	77.1	86.8	92.9	105.2
3S STAND TWO-H 50 A1	60.39	16.14	25.6	34.6	39.8	49.0	59.9	71.2	81.5	87.4	97.7
4S STAND TWO-H 50 P1	66.70	16.57	29.9	39.3	45.0	55.1	66.6	78.0	87.9	93.7	104.7
5S STAND TWO-H 100 A1	32.18	8.14	17.6	20.1	21.8	26.2	31.9	37.7	42.9	46.3	53.8
6S STAND TWO-H 100 P1	35.88	8.76	19.8	23.0	25.3	29.6	35.1	41.2	47.4	51.5	60.7
7S STAND TWO-H 150 A1	27.08	7.33	14.0	16.6	18.6	22.2	26.3	30.7	35.8	39.8	50.6
8S STAND TWO-H 150 P1	30.76	8.03	17.1	19.9	21.9	25.5	29.8	34.5	40.2	44.8	57.8
9S STAND ONE-H 160 A1	20.00	6.01	9.4	11.8	13.2	15.5	19.5	24.1	26.9	29.1	38.7
10S STAND ONE-H 160 P1	23.34	6.81	11.4	14.3	15.4	17.9	22.8	27.4	31.5	33.4	46.1
11S SEATED CENTER-S A1	24.45	9.06	9.9	11.9	13.5	17.3	23.2	30.5	37.4	41.2	46.6
12S SEATED CENTER-S P1	28.54	10.29	11.5	13.9	15.9	20.4	27.2	35.4	43.2	47.5	53.6
13S SEATED SIDE-S A1	22.98	7.20	9.5	12.0	13.9	17.7	22.5	27.6	32.5	35.5	41.5
14S SEATED SIDE-S P1	26.73	8.07	11.3	14.9	16.8	20.7	26.0	32.2	38.0	41.2	45.5
15S SEATED TWO-H 38 A1	51.02	16.35	19.6	26.0	30.4	39.1	49.9	61.6	73.0	80.2	94.9
16S SEATED TWO-H 38 P1	57.10	16.98	22.1	31.0	36.0	45.0	56.0	68.1	79.8	87.2	101.3
17S SEATED TWO-H 50 A1	42.54	13.14	17.6	21.9	25.5	32.8	42.0	51.7	60.5	65.8	75.9
18S SEATED TWO-H 50 P1	47.94	14.07	21.6	25.7	29.6	37.6	47.4	57.2	66.3	72.1	85.3

*IN KILOGRAMS. In reporting the strength data, the conventional units of kilograms and pounds have been used. However, in accordance with the International System of Units, generally known as "SI", the correct unit for reporting kilograms or pounds of force is the newton. The kilogram-force values reported here may be converted to newtons by multiplying by 9.806, while the pound-force values may be converted to newtons by multiplying by 4.448.

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SUMMARY STATISTICS AND SELECTED PERCENTILES
STATIC STRENGTH SERIES (N=344)

ENGLISH UNITS*	MEAN	SD	1ST	5TH	10TH	25TH	50TH	75TH	90TH	95TH	99TH
1S STAND TWO-H 38 A1	132.60	33.44	61.2	78.0	89.2	109.4	131.9	153.9	174.6	188.4	220.7
2S STAND TWO-H 38 P1	147.21	34.17	73.4	92.3	103.7	123.7	146.7	169.9	191.5	204.9	232.0
3S STAND TWO-H 50 A1	133.15	35.59	56.4	76.4	87.8	108.0	132.0	157.0	179.6	192.7	215.5
4S STAND TWO-H 50 P1	147.04	36.52	66.0	86.5	99.1	121.5	146.9	172.0	193.8	206.7	230.8
5S STAND TWO-H 100 A1	70.95	17.95	38.8	44.4	48.0	57.7	70.4	83.1	94.6	102.1	118.7
6S STAND TWO-H 100 P1	79.09	19.18	43.7	50.7	55.7	65.4	77.5	90.9	104.5	113.6	133.7
7S STAND TWO-H 150 A1	59.71	16.17	30.9	36.7	41.0	48.9	58.0	67.8	78.9	87.7	111.5
8S STAND TWO-H 150 P1	67.67	17.70	37.7	43.8	48.2	56.3	65.6	76.0	88.6	98.8	127.3
9S STAND ONE-H 100 A1	44.10	13.25	20.6	26.0	29.1	34.1	42.9	53.0	59.4	64.1	85.3
10S STAND ONE-H 100 P1	51.45	15.01	25.1	31.5	34.0	39.5	50.2	60.5	69.3	73.6	101.7
11S SEATED CENTER-S A1	53.89	19.97	21.9	26.3	29.8	38.2	51.2	67.2	82.4	90.9	102.7
12S SEATED CENTER-S P1	62.91	22.69	25.3	30.8	35.1	45.0	60.0	78.1	95.2	104.7	118.1
13S SEATED SIDE-S A1	50.66	15.88	20.8	26.5	30.7	39.0	49.5	60.9	71.6	78.3	91.4
14S SEATED SIDE-S P1	58.92	17.79	24.9	32.8	37.1	45.5	57.2	71.0	83.8	90.9	100.3
15S SEATED TWO-H 38 A1	112.48	36.04	43.2	57.2	67.1	86.1	109.9	135.9	160.9	176.8	209.2
16S SEATED TWO-H 38 P1	125.89	37.44	48.6	68.4	79.5	99.3	123.5	150.1	176.0	192.2	223.2
17S SEATED TWO-H 50 A1	93.78	28.96	38.8	48.2	56.2	72.3	92.6	113.9	133.3	145.0	167.3
18S SEATED TWO-H 50 P1	105.68	31.01	47.6	56.6	65.3	83.0	104.4	126.1	146.1	159.1	188.0

*IN POUNDS

TABLE 10
CORRELATIONS: CORE AND STATIC STRENGTH SERIES (N=344)

		1S	2S	3S	4S	5S	6S	7S	8S
1S	STAND TWO-H 38 A1		.967	.809	.806	.593	.586	.621	.601
2S	STAND TWO-H 38 P1	.967		.818	.826	.626	.624	.645	.633
3S	STAND TWO-H 50 A1	.809	.818		.981	.579	.578	.585	.567
4S	STAND TWO-H 50 P1	.806	.826	.981		.586	.594	.582	.572
5S	STAND TWO-H 100 A1	.593	.626	.579	.586		.977	.762	.766
6S	STAND TWO-H 100 P1	.586	.624	.578	.594	.977		.762	.780
7S	STAND TWO-H 150 A1	.621	.645	.585	.582	.762	.762		.979
8S	STAND TWO-H 150 P1	.601	.633	.567	.572	.766	.780	.979	
9S	STAND ONE-H 100 A1	.426	.446	.374	.391	.604	.601	.561	.570
10S	STAND ONE-H 100 P1	.413	.442	.372	.400	.605	.617	.558	.575
11S	SEATED CENTER-S A1	.481	.495	.451	.462	.393	.406	.384	.380
12S	SEATED CENTER-S P1	.480	.511	.461	.479	.409	.433	.388	.391
13S	SEATED SIDE-S A1	.496	.505	.482	.484	.442	.454	.425	.417
14S	SEATED SIDE-S P1	.471	.488	.456	.469	.436	.456	.402	.399
15S	SEATED TWO-H 38 A1	.612	.636	.612	.613	.523	.515	.530	.522
16S	SEATED TWO-H 38 P1	.610	.642	.607	.618	.532	.535	.526	.526
17S	SEATED TWO-H 50 A1	.533	.562	.541	.533	.523	.513	.487	.483
18S	SEATED TWO-H 50 P1	.528	.564	.536	.538	.542	.543	.498	.501
1C	WEIGHT	.265	.306	.282	.278	.490	.489	.481	.487
2C	STATURE	.178	.196	.113	.106	.477	.477	.527	.545
3C	SHOULDER HEIGHT	.190	.211	.142	.133	.496	.497	.542	.555
4C	AXILLA HEIGHT	.166	.185	.108	.099	.476	.479	.526	.540
5C	BUSTPOINT HEIGHT	.144	.162	.098	.091	.430	.433	.480	.494
6C	WAIST HEIGHT	.154	.171	.130	.135	.449	.454	.479	.506
7C	CROTCH HEIGHT	.160	.186	.135	.143	.446	.455	.480	.504
8C	BUTTOCK HEIGHT	.129	.157	.125	.134	.450	.456	.470	.496
9C	KNEECAP HEIGHT	.153	.161	.095	.097	.434	.442	.458	.474
10C	CALF HEIGHT	.142	.153	.091	.098	.412	.412	.443	.462
11C	SITTING HEIGHT	.127	.133	.039	.016	.308	.297	.362	.369
12C	EYE HEIGHT/SIT	.138	.141	.048	.024	.286	.271	.344	.346
13C	SHOULDER-ELBOW L	.198	.217	.222	.222	.467	.469	.472	.496
14C	ELBOW-FINGERTIP	.149	.169	.133	.146	.475	.482	.480	.512
15C	KNEE HEIGHT/SIT	.219	.234	.159	.166	.483	.492	.510	.526
16C	POPLITEAL HEIGHT	.154	.165	.117	.125	.422	.436	.462	.482
17C	BUTTOCK-KNEE LGTH	.179	.222	.192	.199	.474	.479	.482	.508

TABLE 10 CONTINUED
CORRELATIONS: CORE AND STATIC STRENGTH SERIES (N=344)

		1S	2S	3S	4S	5S	6S	7S	8S
18C	BUST DEPTH	.119	.146	.155	.143	.232	.227	.176	.170
19C	WAIST DEPTH	.063	.089	.108	.107	.215	.195	.154	.151
20C	CHEST BREADTH	.204	.228	.240	.233	.330	.326	.281	.276
21C	WAIST BREADTH	.204	.229	.230	.222	.273	.260	.246	.224
22C	HIP BREADTH	.173	.195	.185	.181	.267	.254	.292	.278
23C	SHOULDER BREADTH	.227	.265	.266	.265	.390	.382	.347	.343
24C	NECK CIRCUMFERENCE	.190	.215	.161	.166	.344	.342	.338	.360
25C	SHOULDER CIRC	.224	.261	.266	.265	.398	.387	.349	.348
26C	CHEST CIRC AT SCYE	.276	.302	.319	.311	.406	.395	.368	.363
27C	BUST CIRCUMFERENCE	.203	.240	.247	.240	.326	.315	.270	.269
28C	CHEST C BELOW BUST	.254	.295	.284	.273	.361	.354	.340	.334
29C	WAIST CIRC	.155	.185	.184	.177	.257	.242	.219	.206
30C	HIP CIRCUMFERENCE	.190	.223	.208	.205	.322	.314	.338	.332
31C	VERTICAL TRUNK CIR	.222	.244	.188	.169	.423	.414	.455	.452
32C	ARM CIRC AT SCYE	.253	.289	.323	.319	.422	.413	.424	.425
33C	BICEPS CIRC, FLXD	.257	.306	.326	.318	.427	.417	.406	.403
34C	ELBOW CIRC, FLXD	.291	.323	.301	.298	.498	.492	.487	.500
35C	FOREARM CIRC, FLXD	.326	.362	.354	.349	.524	.512	.489	.493
36C	WRIST CIRC	.256	.285	.306	.314	.435	.433	.484	.488
37C	UPPER THIGH CIRC	.236	.269	.266	.260	.343	.334	.341	.330
38C	KNEE CIRCUMFERENCE	.206	.236	.195	.195	.375	.373	.386	.388
39C	CALF CIRCUMFERENCE	.228	.268	.233	.225	.329	.334	.364	.370
40C	ANKLE CIRC	.186	.216	.197	.198	.294	.293	.362	.370
41C	SHOULDER LENGTH	.144	.133	.095	.108	.251	.236	.216	.225
42C	INTERSCYE BACK	.163	.172	.157	.157	.300	.290	.273	.282
43C	INTERSCYE FRONT	.141	.168	.132	.142	.266	.265	.245	.261
44C	BACK ARC, BUST	.243	.275	.284	.275	.335	.320	.320	.307
45C	BACK ARC, WAIST	.197	.231	.249	.243	.280	.263	.249	.236
46C	BACK ARC, HIP	.137	.170	.186	.176	.311	.302	.307	.302
47C	WAIST BACK	.130	.116	.054	.021	.254	.242	.239	.238
48C	WAIST FRONT	.157	.149	.095	.064	.209	.199	.245	.228
49C	NECK-BUSTPOINT LGT	.176	.192	.185	.187	.286	.277	.266	.268
50C	AXILLA-WAIST LEVEL	.021	.014	-038	-077	.107	.087	.141	.119
51C	SLEEVE INSEAM	.122	.139	.119	.127	.429	.436	.426	.458
52C	SLEEVE OUTSEAM	.139	.157	.148	.149	.443	.446	.438	.460

		1S	2S	3S	4S	5S	6S	7S	8S
53C	CROTCH LENGTH	.108	.130	.126	.134	.241	.239	.235	.244
54C	HEAD CIRCUMFERENCE	.152	.175	.147	.151	.314	.309	.283	.289
55C	HEAD BREADTH	.109	.137	.109	.106	.144	.122	.101	.103
56C	HEAD LENGTH	.149	.172	.133	.137	.267	.273	.276	.277
57C	PALM LENGTH	.101	.122	.113	.114	.412	.422	.401	.430
58C	HAND BREADTH	.223	.255	.250	.252	.428	.425	.424	.431
59C	HAND CIRCUMFERENCE	.261	.291	.274	.277	.440	.438	.449	.452
60C	HAND LENGTH	.165	.183	.152	.161	.464	.470	.445	.477
61C	INSTEP LENGTH	.155	.191	.160	.167	.420	.423	.469	.494
62C	FOOT LENGTH	.169	.202	.148	.159	.449	.459	.493	.524
63C	HEEL-ANKLE CIRC	.235	.264	.254	.255	.504	.505	.521	.535
64C	FOOT BREADTH	.164	.179	.138	.146	.299	.310	.289	.290
65C	HEEL BREADTH	.143	.162	.186	.179	.379	.388	.390	.397
66C	FOOT CIRCUMFERENCE	.201	.218	.197	.203	.381	.388	.405	.411
67C	INSTEP CIRC	.241	.261	.245	.255	.447	.458	.446	.464
68C	ANKLE HEIGHT	.122	.118	.088	.084	.307	.314	.304	.314
69C	SPHYRION HEIGHT	.214	.203	.151	.143	.177	.179	.200	.197
70C	AGE	-055	-034	-005	-027	.047	.024	-063	-080

TABLE 10 CONTINUED
CORRELATIONS: CORE AND STATIC STRENGTH SERIES (N=344)

		9S	10S	11S	12S	13S	14S	15S	16S
1S	STAND TWO-H 38 A1	.426	.413	.481	.480	.496	.471	.612	.610
2S	STAND TWO-H 38 P1	.446	.442	.495	.511	.505	.488	.636	.642
3S	STAND TWO-H 50 A1	.374	.372	.451	.461	.482	.456	.612	.607
4S	STAND TWO-H 50 P1	.391	.400	.462	.479	.484	.469	.613	.618
5S	STAND TWO-H 100 A1	.604	.605	.393	.409	.442	.436	.523	.532
6S	STAND TWO-H 100 P1	.601	.617	.406	.433	.454	.456	.515	.535
7S	STAND TWO-H 150 A1	.561	.558	.384	.388	.425	.402	.530	.526
8S	STAND TWO-H 150 P1	.570	.575	.380	.391	.417	.399	.522	.526
9S	STAND ONE-H 100 A1		.972	.532	.525	.503	.509	.431	.440
10S	STAND ONE-H 100 P1	.972		.544	.547	.520	.540	.441	.461
11S	SEATED CENTER-S A1	.532	.544		.974	.763	.773	.632	.629
12S	SEATED CENTER-S P1	.525	.547	.974		.773	.793	.620	.630
13S	SEATED SIDE-S A1	.503	.520	.763	.773		.974	.587	.586
14S	SEATED SIDE-S P1	.509	.540	.773	.793	.974		.584	.592
15S	SEATED TWO-H 38 A1	.431	.441	.632	.620	.587	.584		.983
16S	SEATED TWO-H 38 P1	.440	.461	.629	.630	.586	.592	.983	
17S	SEATED TWO-H 50 A1	.413	.423	.580	.576	.567	.571	.710	.694
18S	SEATED TWO-H 50 P1	.424	.447	.569	.577	.572	.588	.699	.697
1C	WEIGHT	.392	.395	.168	.188	.172	.171	.249	.266
2C	STATURE	.409	.394	.023	.028	.087	.076	.122	.120
3C	SHOULDER HEIGHT	.426	.414	.051	.055	.107	.093	.147	.144
4C	AXILLA HEIGHT	.418	.406	.027	.028	.086	.073	.117	.113
5C	BUSTPOINT HEIGHT	.373	.362	-005	-001	.057	.046	.098	.095
6C	WAIST HEIGHT	.335	.330	-025	-014	.025	.016	.071	.068
7C	CROTCH HEIGHT	.394	.392	-013	-006	.008	-009	.070	.072
8C	BUTTOCK HEIGHT	.383	.379	-035	-024	-011	-033	.070	.079
9C	KNEECAP HEIGHT	.357	.346	-036	-030	-006	-020	.064	.064
10C	CALF HEIGHT	.351	.338	-060	-058	-020	-046	.025	.032
11C	SITTING HEIGHT	.248	.228	.073	.075	.165	.175	.149	.144
12C	EYE HEIGHT/SIT	.228	.209	.079	.079	.154	.160	.165	.151
13C	SHOULDER-ELBOW L	.348	.338	.021	.029	.076	.053	.133	.128
14C	ELBOW-FINGERTIP	.382	.375	-008	-004	.038	.016	.095	.100
15C	KNEE HEIGHT/SIT	.423	.410	.056	.063	.053	.036	.139	.143
16C	POPLITEAL HEIGHT	.364	.351	-011	-015	-006	-021	.085	.082
17C	BUTTOCK-KNEE LGTH	.382	.372	.009	.017	.012	-012	.089	.103

TABLE 10 CONTINUED
CORRELATIONS: CORE AND STATIC STRENGTH SERIES (N=344)

		9S	10S	11S	12S	13S	14S	15S	16S
18C	BUST DEPTH	.182	.184	.095	.119	.079	.084	.102	.119
19C	WAIST DEPTH	.178	.173	.028	.040	-016	-023	.044	.060
20C	CHEST BREADTH	.227	.239	.162	.182	.119	.128	.205	.213
21C	WAIST BREADTH	.247	.253	.155	.160	.124	.116	.174	.178
22C	HIP BREADTH	.227	.226	.093	.103	.092	.102	.154	.158
23C	SHOULDER BREADTH	.305	.312	.154	.164	.144	.148	.242	.252
24C	NECK CIRCUMFERENCE	.302	.301	.100	.112	.115	.112	.185	.200
25C	SHOULDER CIRC	.298	.303	.137	.145	.133	.136	.229	.240
26C	CHEST CIRC AT SCYE	.292	.297	.201	.205	.173	.173	.250	.260
27C	BUST CIRCUMFERENCE	.271	.275	.140	.160	.099	.104	.181	.199
28C	CHEST C BELOW BUST	.289	.293	.183	.205	.149	.148	.214	.226
29C	WAIST CIRC	.231	.230	.093	.099	.052	.046	.131	.140
30C	HIP CIRCUMFERENCE	.287	.282	.104	.118	.097	.093	.166	.179
31C	VERTICAL TRUNK CIR	.357	.342	.170	.178	.204	.199	.220	.228
32C	ARM CIRC AT SCYE	.331	.328	.186	.203	.188	.187	.268	.278
33C	BICEPS CIRC, FLXD	.315	.317	.226	.245	.211	.212	.292	.306
34C	ELBOW CIRC, FLXD	.363	.358	.199	.205	.237	.236	.294	.310
35C	FOREARM CIRC, FLXD	.366	.366	.245	.252	.237	.238	.343	.361
36C	WRIST CIRC	.384	.382	.162	.166	.207	.200	.264	.274
37C	UPPER THIGH CIRC	.282	.285	.169	.186	.145	.147	.236	.246
38C	KNEE CIRCUMFERENCE	.348	.340	.108	.116	.147	.134	.162	.182
39C	CALF CIRCUMFERENCE	.260	.263	.174	.197	.190	.187	.264	.282
40C	ANKLE CIRC	.307	.305	.203	.204	.223	.217	.228	.237
41C	SHOULDER LENGTH	.175	.177	.030	.027	.044	.042	.173	.190
42C	INTERSCYE BACK	.202	.209	.052	.037	.024	.020	.135	.136
43C	INTERSCYE FRONT	.264	.264	.134	.148	.136	.131	.204	.226
44C	BACK ARC, BUST	.248	.248	.158	.168	.150	.146	.176	.178
45C	BACK ARC, WAIST	.253	.261	.136	.149	.109	.105	.155	.165
46C	BACK ARC, HIP	.253	.244	.080	.093	.112	.113	.127	.142
47C	WAIST BACK	.205	.187	.109	.098	.153	.149	.132	.124
48C	WAIST FRONT	.233	.225	.141	.139	.172	.162	.191	.189
49C	NECK-BUSTPOINT LGT	.264	.258	.165	.176	.144	.140	.186	.203
50C	AXILLA-WAIST LEVEL	.152	.141	.041	.023	.068	.046	.050	.036
51C	SLEEVE INSEAM	.306	.295	-050	-050	.005	-020	.048	.043
52C	SLEEVE OUTSEAM	.351	.342	-009	-001	.037	.011	.082	.079

		9S	10S	11S	12S	13S	14S	15S	16S
53C	CROTCH LENGTH	.180	.173	.079	.091	.082	.089	.084	.091
54C	HEAD CIRCUMFERENCE	.206	.204	.071	.076	.074	.067	.131	.141
55C	HEAD BREADTH	.066	.075	.090	.096	.063	.055	.078	.085
56C	HEAD LENGTH	.179	.179	.064	.077	.080	.075	.131	.139
57C	PALM LENGTH	.380	.384	.016	.034	.106	.081	.092	.103
58C	HAND BREADTH	.324	.333	.136	.142	.198	.187	.223	.236
59C	HAND CIRCUMFERENCE	.310	.322	.175	.177	.203	.200	.254	.268
60C	HAND LENGTH	.405	.407	.029	.045	.098	.072	.115	.127
61C	INSTEP LENGTH	.367	.368	.058	.069	.084	.062	.143	.157
62C	FOOT LENGTH	.399	.394	.077	.096	.124	.109	.138	.157
63C	HEEL-ANKLE CIRC	.405	.397	.129	.137	.210	.184	.220	.229
64C	FOOT BREADTH	.199	.206	.103	.121	.130	.140	.147	.171
65C	HEEL BREADTH	.268	.272	.082	.099	.153	.141	.144	.150
66C	FOOT CIRCUMFERENCE	.287	.292	.129	.140	.159	.153	.205	.226
67C	INSTEP CIRC	.341	.347	.165	.170	.185	.171	.236	.248
68C	ANKLE HEIGHT	.180	.176	-080	-081	-044	-043	.049	.052
69C	SPHYRION HEIGHT	.129	.131	.151	.142	.128	.133	.172	.179
70C	AGE	.018	-017	-097	-092	-053	-057	-019	-022

		17S	18S
1S	STAND TWO-H 38 A1	.533	.528
2S	STAND TWO-H 38 P1	.562	.564
3S	STAND TWO-H 50 A1	.541	.536
4S	STAND TWO-H 50 P1	.533	.538
5S	STAND TWO-H 100 A1	.523	.542
6S	STAND TWO-H 100 P1	.513	.543
7S	STAND TWO-H 150 A1	.487	.498
8S	STAND TWO-H 150 P1	.483	.501
9S	STAND ONE-H 100 A1	.413	.424
10S	STAND ONE-H 100 P1	.423	.447
11S	SEATED CENTER-S A1	.580	.569
12S	SEATED CENTER-S P1	.576	.577
13S	SEATED SIDE-S A1	.567	.572
14S	SEATED SIDE-S P1	.571	.588
15S	SEATED TWO-H 38 A1	.710	.699
16S	SEATED TWO-H 38 P1	.694	.697
17S	SEATED TWO-H 50 A1		.978
18S	SEATED TWO-H 50 P1	.978	
1C	WEIGHT	.209	.231
2C	STATURE	.110	.112
3C	SHOULDER HEIGHT	.127	.129
4C	AXILLA HEIGHT	.115	.113
5C	BUSTPOINT HEIGHT	.096	.092
6C	WAIST HEIGHT	.064	.069
7C	CROTCH HEIGHT	.095	.096
8C	BUTTOCK HEIGHT	.092	.101
9C	KNEECAP HEIGHT	.047	.054
10C	CALF HEIGHT	.025	.032
11C	SITTING HEIGHT	.109	.105
12C	EYE HEIGHT/SIT	.110	.099
13C	SHOULDER-ELBOW L	.138	.137
14C	ELBOW-FINGERTIP	.124	.132
15C	KNEE HEIGHT/SIT	.103	.107
16C	POPLITEAL HEIGHT	.062	.057
17C	BUTTOCK-KNEE LGTH	.096	.102

		17S	18S
18C	BUST DEPTH	.079	.105
19C	WAIST DEPTH	.033	.045
20C	CHEST BREADTH	.170	.186
21C	WAIST BREADTH	.165	.177
22C	HIP BREADTH	.125	.125
23C	SHOULDER BREADTH	.189	.195
24C	NECK CIRCUMFERENCE	.166	.180
25C	SHOULDER CIRC	.189	.200
26C	CHEST CIRC AT SCYE	.219	.233
27C	BUST CIRCUMFERENCE	.156	.176
28C	CHEST C BELOW BUST	.175	.198
29C	WAIST CIRC	.104	.115
30C	HIP CIRCUMFERENCE	.151	.159
31C	VERTICAL TRUNK CIR	.187	.193
32C	ARM CIRC AT SCYE	.192	.219
33C	BICEPS CIRC, FLXD	.242	.268
34C	ELBOW CIRC, FLXD	.275	.296
35C	FOREARM CIRC, FLXD	.321	.341
36C	WRIST CIRC	.237	.257
37C	UPPER THIGH CIRC	.205	.214
38C	KNEE CIRCUMFERENCE	.138	.158
39C	CALF CIRCUMFERENCE	.230	.250
40C	ANKLE CIRC	.211	.224
41C	SHOULDER LENGTH	.062	.069
42C	INTERSCYE BACK	.106	.120
43C	INTERSCYE FRONT	.151	.150
44C	BACK ARC, BUST	.158	.173
45C	BACK ARC, WAIST	.104	.115
46C	BACK ARC, HIP	.110	.118
47C	WAIST BACK	.132	.142
48C	WAIST FRONT	.141	.134
49C	NECK-BUSTPOINT LGT	.078	.100
50C	AXILLA-WAIST LEVEL	.066	.046
51C	SLEEVE INSEAM	.097	.094
52C	SLEEVE OUTSEAM	.083	.081

		17S	18S
53C	CROTCH LENGTH	.047	.061
54C	HEAD CIRCUMFERENCE	.104	.111
55C	HEAD BREADTH	.041	.047
56C	HEAD LENGTH	.075	.081
57C	PALM LENGTH	.145	.158
58C	HAND BREADTH	.230	.253
59C	HAND CIRCUMFERENCE	.251	.273
60C	HAND LENGTH	.160	.179
61C	INSTEP LENGTH	.162	.172
62C	FOOT LENGTH	.149	.163
63C	HEEL-ANKLE CIRC	.209	.218
64C	FOOT BREADTH	.121	.132
65C	HEEL BREADTH	.121	.134
66C	FOOT CIRCUMFERENCE	.194	.207
67C	INSTEP CIRC	.184	.204
68C	ANKLE HEIGHT	.061	.064
69C	SPHYRION HEIGHT	.111	.113
70C	AGE	-082	-097

Chapter II

REGRESSION EQUATIONS

It is often desirable, and sometimes necessary to determine the dimensions of a target population which has not been measured for the particular dimensions of interest. Such a population might well be a specialized subgroup extracted from a larger sample for which population values are available; it might be a single individual. Thus, for example, one may be concerned with certain workspace dimensions of women volunteering for duty as tank operators whose average stature is 63 inches. Since this height measurement is more than an inch less than the population average for U.S. Army women, it would be of interest to determine certain critical measurements for these women who will have to function efficiently in a workspace originally designed for use by men. Such dimensions might include sitting height, eye height/sitting, arm reach and leg length.

Simple Regressions

Given a set of data which include all the dimensions of interest for the comparable population (U.S. Army women) and stature measurements for the target group (or individual), we can construct a formula or straight-line equation which tells us as accurately as possible a woman's sitting height when we put her stature value into the formula. The regression equation can give us the average sitting height for a women of a given stature, an estimate which will be quite accurate if the two variables are reasonably well related. As can be seen by referring to Table 2 in Chapter I, the correlation coefficient of stature and sitting height is .767, a moderately good relationship.

A simple regression equation to predict y (sitting height), knowing x (stature), is as follows:

$$y = r * \frac{SD_y}{SD_x} * x + (\overline{Y} - r * \frac{SD_y}{SD_x} * \overline{X})$$

where

        y = the variable to be predicted

        x = the value estimated from

        r = the correlation coefficient of x with y

   SD_y = the standard deviation for the y variable for the reference population

      * = the symbol for multiplication in Fortran

SD_x = the standard deviation for the x variable
for the reference population

$\overline{Y}$ = the mean value for the variable for the
reference population

$\overline{X}$ = the mean value for the variable for the
reference population

If we wished to estimate the average sitting height of Army women who are 63 inches tall, we would substitute in the equation above the following values for stature (variable 2C), sitting height (variable 11C), and the correlation between them taken from the reference population statistics given in Tables 1 and 2. These values are:

x = the stature value of 63"

y = the value to be estimated

r = .767

$\overline{X}$ = 64.15"

$\overline{Y}$ = 33.49"

SD_y = 1.41

SD_x = 2.57

Solving the equation with these values:

$$y = .767 * \frac{1.41}{2.57} x + (33.49 - .767 * \frac{1.41}{2.57} * 64.15)$$

$$y = .421 x + 6.48$$

Using the value 63" for x:

$$y = (.421 * 63) + 6.48$$

$$y = 33"$$

Thirty-three inches is the best estimate of sitting height for Army women whose stature is 63". In a similar fashion the user can develop other estimates of sitting height for other values of stature and from any other combinations of dimensions for which the necessary statistics of the means, standard deviations and correlation coefficients are available.

The simple regression described above will provide an average y or sitting height value for various values of x or stature. But not

all Army women of 63-inch stature will have a sitting height of exactly 33 inches. Figure 1 is a bivariate distribution table of Army women for the variables of stature and sitting height. The numbers under the column 63 (inches of stature) are the numbers of individuals of 63-inch stature who have sitting heights of various values. As the regression estimate is a measure of central tendency (like the mean), the standard error of estimate is a measure of variability about the estimate. The standard error of estimate is computed as:

$$Se_{est} = SD_y \sqrt{1-r^2}$$

Substituting the values used in the example above:

$$Se_{est} = 1.41 \sqrt{1-.767^2}$$

$$= 1.41 \sqrt{.411711}$$

$$= 0.90"$$

The standard errors are statistically similar to the standard deviation and used in conjunction with the regression estimate permit the construction of a probability statement of the relationship of stature and sitting height. In practical terms, this means that essentially two-thirds of the subjects who are 63 inches tall will have sitting heights ranging from 32.10 to 33.90 (the regression value plus or minus 1 Se_{est}) and 95% will have sitting heights falling between 31.20 and 34.80" (regression value plus or minus 2 Se_{est}).

Multiple Regressions

With the correlation coefficients and summary statistics presented here, it is also possible to compute multiple correlation coefficients. The multiple correlation coefficient expresses the degree of relationship between one variable (z) and two other variables (x and y). The multiple correlation coefficient can be calculated from the simple correlations as:

$$R = \sqrt{\frac{r^2(x,z) + r^2(y,z) - 2[r(x,z)\ r(y,z)\ r(x,y)]}{1 - r^2(x,y)}}$$

If we wished to estimate head breadth for Army women given head length and head circumference, the necessary input values could be found in Tables 1 and 2. The simple correlation coefficients and summary statistics are:

STATURE(IN)

SITTING HEIGHT(IN)	56.0	57.0	58.0	59.0	60.0	61.0	62.0	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0	72.0	TOTAL
38.0															1		1	2
37.5														1		1		2
37.0												1	1	1	2	2		7
36.5										1	2	2	4	7	1	1	1	19
36.0										2	4	7	5	10	3	2		33
35.5									3	7	13	16	12	15	4	2		72
35.0								6	10	30	22	24	13	6	5			115
34.5						2	4	17	28	45	36	16	17	2				165
34.0					1	5	6	21	46	46	28	20	2	6				178
33.5					3	15	31	39	39	35	12	13	3	1	1			181
33.0					2	23	40	43	21	19	11	3	2	1				168
32.5				6	10	21	32	23	19	15	11	1		1				140
32.0			1	3	12	13	27	24	19	5	1							113
31.5			1	8	12	7	12	12	9	1								68
31.0		2	4	3	7	8	8	2	2									36
30.5			2	3	6	4	5		1									26
30.0	1		1	2	1	2												9
29.5		1	2	2														6
29.0			1															2
TOTAL	1	3	12	26	54	100	166	186	197	206	140	103	59	61	17	8	2	1330

Figure 6.   A bivariate frequency table for stature and sitting height (1977 Army women).

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| | CORRELATION COEFFICIENTS | | | SUMMARY STATISTICS (in inches) | |
	Head Circ (x)	Head Lgth (y)	Head Br (z)	Mean	SD
Head Circ (x)	--	.796	.548	21.62	0.64
Head Lgth (y)	.796	--	.162	7.37	0.26
Head Br (z)	.548	.161	--	5.75	0.21

Substituting these values in the above equation:

$$R = \sqrt{\frac{.548^2 + .162^2 - 2[.548 * .162 * .796]}{1 - .796^2}}$$

$$R = \sqrt{\frac{0.326548 - 0.141331}{.366384}}$$

$$R = \sqrt{.505527}$$

$$R = .711$$

This is an appreciable improvement over either of the simple correlations of head circumference and head breadth (r = .548) or head length and head breadth (r = .162). Multiple correlations do not necessarily show a marked improvement over the single correlational values but the resulting R will always be at least as large as the larger (in absolute value) of the single correlation coefficients.

The multiple regression equation can be developed using the following formula:

$$z = ax + by + c$$

$$a = \left[\frac{r(x,z) - r(x,y) * r(y,z)}{1 - r^2(x,y)}\right] * \left(\frac{SD_z}{SD_x}\right)$$

$$b = \left[\frac{r(y,z) - r(x,y) * r(x,z)}{1 - r^2(x,y)}\right] * \left(\frac{SD_z}{SD_y}\right)$$

$$c = \overline{Z} - a * \overline{X} - b * \overline{Y}$$

Substituting the above-tabulated summary data for head circumference, head length, and head breadth:

$$a = \left(\frac{.548 - (.796 * .162)}{1 - .796^2}\right) * \left(\frac{0.21}{0.64}\right)$$

$$a = \frac{.419048}{.366384} * .328125$$

$$a = .375$$

$$b = \left(\frac{.162 - (.796 * .548)}{1 - .796^2}\right) * \left(\frac{0.21}{0.26}\right)$$

$$b = \frac{-.274208}{.366384} * .807692$$

$$b = -.604$$

$$c = 5.75 - (.375 * 21.62) - (-.604 * 7.37)$$

$$c = 2.09$$

and

$$z = .375x - .604y + 2.09$$

Given an individual with a head circumference of 22 inches and a head length of 7.5 inches, the best estimate of head breadth would be:

Head Br = (.375*22) - (.604*7.5) + 2.09

Head Br = 5.81 inches

The standard error of estimate would be:

$$Se_{est} = SD_z \sqrt{1 - R^2}$$

$$= 0.21 \sqrt{1 - .711}$$

$$= 0.15$$

Similarly, it is possible to construct multiple step regression equations for three or more predictor variables. Although this is a laborious procedure by hand, a computer handles the computations readily and a number of such computer routines are available.

Stature and weight are two easily ascertained dimensions which, between them, correlate well with most measurements of body size (except head, face, foot and hand measurements). Thus, both stature and weight are often incorporated into a multiple regression equation which can then usefully predict a whole range of body measurements with greater accuracy than can be achieved by simple equations. These computations are usually done by computers and are provided here as Tables 11, 12 and 13 for the U.S. Army women's population. These data include height/ weight regressions for the core measurements, the traditional series and the workspace series. The strength and head-face measurements are not included because of their poor correlation with height and weight.

MULTIPLE REGRESSION EQUATIONS FOR PREDICTING WOMEN'S ANTHROPOMETRIC DIMENSIONS FROM BODY WEIGHT AND STATURE

CORE MEASUREMENTS: METRIC UNITS*

		R					SE EST
1C	WEIGHT	1.000	1.000*WT	+0.000*HT	+	0.00	0.00
2C	STATURE	1.000	0.000*WT	+1.000*HT	+	0.00	0.00
3C	SHOULDER HEIGHT	.970	.048*WT	+ .857*HT	−	9.04	1.45
4C	AXILLA HEIGHT	.969	.003*WT	+ .828*HT	−	11.86	1.38
5C	BUSTPOINT HEIGHT	.938	−.035*WT	+ .834*HT	−	15.51	1.95
6C	WAIST HEIGHT	.898	−.032*WT	+ .739*HT	−	17.11	2.29
7C	CROTCH HEIGHT	.864	−.042*WT	+ .609*HT	−	20.36	2.20
8C	BUTTOCK HEIGHT	.831	.032*WT	+ .572*HT	−	11.33	2.60
9C	KNEECAP HEIGHT	.848	−.011*WT	+ .353*HT	−	8.96	1.40
10C	CALF HEIGHT	.729	.010*WT	+ .250*HT	−	8.79	1.57
11C	SITTING HEIGHT	.767	.006*WT	+ .418*HT	+	16.60	2.30
12C	EYE HEIGHT/SIT	.738	.002*WT	+ .390*HT	+	9.96	2.34
13C	SHOULDER-ELBOW L	.809	.011*WT	+ .209*HT	−	1.15	1.03
14C	ELBOW-FINGERTIP	.734	.022*WT	+ .241*HT	+	2.93	1.55
15C	KNEE HEIGHT/SIT	.863	.037*WT	+ .316*HT	−	2.72	1.31
16C	POPLITEAL HEIGHT	.849	−.020*WT	+ .320*HT	−	9.26	1.24
17C	BUTTOCK-KNEE LGTH	.846	.157*WT	+ .247*HT	+	8.19	1.63
18C	BUST DEPTH	.788	.237*WT	− .109*HT	+	26.47	1.36
19C	WAIST DEPTH	.779	.233*WT	− .121*HT	+	24.03	1.37
20C	CHEST BREADTH	.795	.190*WT	− .056*HT	+	25.98	1.11
21C	WAIST BREADTH	.758	.242*WT	− .077*HT	+	23.62	1.58
22C	HIP BREADTH	.802	.237*WT	− .016*HT	+	23.76	1.46
23C	SHOULDER BREADTH	.817	.223*WT	− .030*HT	+	33.56	1.27
24C	NECK CIRCUMFERENCE	.649	.118*WT	+ .004*HT	+	24.63	1.19
25C	SHOULDER CIRC	.844	.578*WT	− .131*HT	+	87.07	2.87
26C	CHEST CIRC AT SCYE	.845	.565*WT	− .170*HT	+	79.37	2.73
27C	BUST CIRCUMFERENCE	.840	.710*WT	− .264*HT	+	88.66	3.43
28C	CHEST C BELOW BUST	.822	.532*WT	− .162*HT	+	69.31	2.82
29C	WAIST CIRC	.827	.756*WT	− .312*HT	+	76.52	3.81
30C	HIP CIRCUMFERENCE	.907	.707*WT	− .093*HT	+	68.28	2.65
31C	VERTICAL TRUNK CIR	.850	.541*WT	+ .350*HT	+	64.37	3.80
32C	ARM CIRC AT SCYE	.822	.244*WT	− .033*HT	+	28.26	1.36
33C	BICEPS CIRC, FLXD	.862	.264*WT	− .112*HT	+	29.30	1.15
34C	ELBOW CIRC, FLXD	.676	.109*WT	+ .039*HT	+	13.09	1.19
35C	FOREARM CIRC, FLXD	.786	.150*WT	− .026*HT	+	19.87	.94

*WEIGHT IN KILOGRAMS; STATURE IN CENTIMETERS

MULTIPLE REGRESSION EQUATIONS FOR PREDICTING WOMEN'S ANTHROPOMETRIC DIMENSIONS FROM BODY WEIGHT AND STATURE

CORE MEASUREMENTS: METRIC UNITS*

		R			SE EST
36C	WRIST CIRC	.666	.045*WT + .017*HT +	9.24	.51
37C	UPPER THIGH CIRC	.910	.547*WT − .181*HT +	53.62	1.89
38C	KNEE CIRCUMFERENCE	.820	.220*WT − .009*HT +	23.10	1.28
39C	CALF CIRCUMFERENCE	.789	.252*WT − .059*HT +	29.60	1.53
40C	ANKLE CIRC	.642	.088*WT + .013*HT +	13.34	.95
41C	SHOULDER LENGTH	.377	.006*WT + .055*HT +	5.56	.98
42C	INTERSCYE BACK	.479	.128*WT + .010*HT +	28.55	2.05
43C	INTERSCYE FRONT	.576	.103*WT + .031*HT +	21.94	1.42
44C	BACK ARC, BUST	.780	.326*WT − .123*HT +	42.46	1.95
45C	BACK ARC, WAIST	.800	.369*WT − .152*HT +	37.94	2.05
46C	BACK ARC, HIP	.801	.377*WT − .081*HT +	38.10	2.21
47C	WAIST BACK	.521	.015*WT + .200*HT +	7.36	2.26
48C	WAIST FRONT	.439	.087*WT + .087*HT +	17.34	2.35
49C	NECK-BUSTPOINT LGT	.570	.145*WT − .012*HT +	18.55	1.71
50C	AXILLA-WAIST LEVEL	.284	0.000*WT + .110*HT +	5.17	2.40
51C	SLEEVE INSEAM	.747	−.017*WT + .312*HT −	4.77	1.74
52C	SLEEVE OUTSEAM	.782	.007*WT + .351*HT −	3.82	1.85
53C	CROTCH LENGTH	.644	.368*WT + .097*HT +	35.06	4.17
54C	HEAD CIRCUMFERENCE	.444	.058*WT + .051*HT +	43.14	1.47
55C	HEAD BREADTH	.317	.021*WT − .001*HT +	13.52	.51
56C	HEAD LENGTH	.396	.013*WT + .029*HT +	13.20	.62
57C	PALM LENGTH	.586	.002*WT + .045*HT +	2.43	.42
58C	HAND BREADTH	.543	.018*WT + .013*HT +	4.62	.33
59C	HAND CIRCUMFERENCE	.568	.042*WT + .030*HT +	11.04	.71
60C	HAND LENGTH	.638	.009*WT + .081*HT +	3.70	.69
61C	INSTEP LENGTH	.661	.028*WT + .076*HT +	3.79	.74
62C	FOOT LENGTH	.715	.030*WT + .112*HT +	4.27	.88
63C	HEEL-ANKLE CIRC	.718	.075*WT + .085*HT +	12.44	1.01
64C	FOOT BREADTH	.523	.023*WT + .017*HT +	4.72	.44
65C	HEEL BREADTH	.501	.023*WT + .003*HT +	4.22	.36
66C	FOOT CIRCUMFERENCE	.615	.063*WT + .039*HT +	12.48	.90
67C	INSTEP CIRC	.616	.072*WT + .039*HT +	12.81	.99
68C	ANKLE HEIGHT	.518	−.016*WT + .090*HT −	2.85	.87
69C	SPHYRION HEIGHT	.403	.002*WT + .032*HT +	1.13	.50

*WEIGHT IN KILOGRAMS; STATURE IN CENTIMETERS

MULTIPLE REGRESSION EQUATIONS FOR PREDICTING WOMEN'S
ANTHROPOMETRIC DIMENSIONS FROM BODY WEIGHT AND STATURE

CORE MEASUREMENTS: ENGLISH UNITS*

		R					SE EST
1C	WEIGHT	1.000	1.000*WT	+0.000*HT +	0.00	0.00
2C	STATURE	1.000	0.000*WT	+1.000*HT +	0.00	0.00
3C	SHOULDER HEIGHT	.970	.009*WT	+ .857*HT -	3.62	.57
4C	AXILLA HEIGHT	.969	.000*WT	+ .828*HT -	4.60	.54
5C	BUSTPOINT HEIGHT	.938	-.005*WT	+ .834*HT -	6.27	.77
6C	WAIST HEIGHT	.898	-.005*WT	+ .739*HT -	6.83	.90
7C	CROTCH HEIGHT	.864	-.007*WT	+ .609*HT -	8.08	.87
8C	BUTTOCK HEIGHT	.831	.006*WT	+ .572*HT -	4.50	1.02
9C	KNEECAP HEIGHT	.848	-.001*WT	+ .353*HT -	3.66	.55
10C	CALF HEIGHT	.729	.002*WT	+ .250*HT -	3.49	.62
11C	SITTING HEIGHT	.767	.001*WT	+ .418*HT +	6.54	.91
12C	EYE HEIGHT/SIT	.738	.000*WT	+ .390*HT +	3.97	.92
13C	SHOULDER-ELBOW L	.809	.002*WT	+ .209*HT -	.46	.40
14C	ELBOW-FINGERTIP	.734	.004*WT	+ .241*HT +	1.14	.61
15C	KNEE HEIGHT/SIT	.863	.007*WT	+ .316*HT -	1.12	.52
16C	POPLITEAL HEIGHT	.849	-.003*WT	+ .320*HT -	3.72	.49
17C	BUTTOCK-KNEE LGTH	.846	.028*WT	+ .247*HT +	3.23	.64
18C	BUST DEPTH	.768	.042*WT	- .109*HT +	10.46	.54
19C	WAIST DEPTH	.779	.042*WT	- .121*HT +	9.41	.54
20C	CHEST BREADTH	.795	.034*WT	- .056*HT +	10.22	.44
21C	WAIST BREADTH	.758	.043*WT	- .077*HT +	9.33	.62
22C	HIP BREADTH	.802	.042*WT	- .016*HT +	9.40	.58
23C	SHOULDER BREADTH	.817	.040*WT	- .030*HT +	13.19	.50
24C	NECK CIRCUMFERENCE	.649	.021*WT	+ .004*HT +	9.71	.47
25C	SHOULDER CIRC	.844	.103*WT	- .131*HT +	34.31	1.13
26C	CHEST CIRC AT SCYE	.845	.101*WT	- .170*HT +	31.23	1.08
27C	BUST CIRCUMFERENCE	.840	.127*WT	- .264*HT +	34.88	1.35
28C	CHEST C BELOW BUST	.822	.095*WT	- .162*HT +	27.29	1.11
29C	WAIST CIRC	.827	.135*WT	- .312*HT +	30.13	1.50
30C	HIP CIRCUMFERENCE	.907	.126*WT	- .093*HT +	26.91	1.04
31C	VERTICAL TRUNK CIR	.850	.097*WT	+ .350*HT +	25.29	1.50
32C	ARM CIRC AT SCYE	.822	.044*WT	- .033*HT +	11.07	.54
33C	BICEPS CIRC, FLXD	.862	.047*WT	- .112*HT +	11.55	.45
34C	ELBOW CIRC, FLXD	.676	.020*WT	+ .039*HT +	5.08	.47
35C	FOREARM CIRC, FLXD	.766	.027*WT	- .026*HT +	7.80	.37

*WEIGHT IN POUNDS; STATURE IN INCHES

MULTIPLE REGRESSION EQUATIONS FOR PREDICTING WOMEN'S ANTHROPOMETRIC DIMENSIONS FROM BODY WEIGHT AND STATURE

CORE MEASUREMENTS: ENGLISH UNITS*

		R			SE EST
36C	WRIST CIRC	.666	.008*WT + .017*HT +	3.64	.20
37C	UPPER THIGH CIRC	.910	.098*WT - .181*HT +	21.07	.74
38C	KNEE CIRCUMFERENCE	.820	.039*WT - .009*HT +	9.13	.50
39C	CALF CIRCUMFERENCE	.789	.045*WT - .059*HT +	11.65	.60
40C	ANKLE CIRC	.642	.016*WT + .013*HT +	5.21	.38
41C	SHOULDER LENGTH	.377	.001*WT + .055*HT +	2.24	.39
42C	INTERSCYE BACK	.479	.023*WT + .010*HT +	11.22	.81
43C	INTERSCYE FRONT	.576	.018*WT + .031*HT +	8.69	.56
44C	BACK ARC, BUST	.780	.058*WT - .123*HT +	16.75	.77
45C	BACK ARC, WAIST	.800	.066*WT - .152*HT +	14.92	.81
46C	BACK ARC, HIP	.801	.067*WT - .081*HT +	15.04	.87
47C	WAIST BACK	.521	.003*WT + .200*HT +	2.85	.89
48C	WAIST FRONT	.439	.016*WT + .087*HT +	6.77	.93
49C	NECK-BUSTPOINT LGT	.570	.026*WT - .012*HT +	7.29	.67
50C	AXILLA-WAIST LEVEL	.284	0.000*WT + .110*HT +	2.04	.95
51C	SLEEVE INSEAM	.747	-.002*WT + .312*HT -	2.01	.68
52C	SLEEVE OUTSEAM	.782	.001*WT + .351*HT -	1.47	.73
53C	CROTCH LENGTH	.644	.066*WT + .097*HT +	13.77	1.64
54C	HEAD CIRCUMFERENCE	.444	.010*WT + .051*HT +	17.03	.58
55C	HEAD BREADTH	.317	.004*WT - .001*HT +	5.29	.20
56C	HEAD LENGTH	.396	.002*WT + .029*HT +	5.24	.24
57C	PALM LENGTH	.586	0.000*WT + .045*HT +	1.00	.17
58C	HAND BREADTH	.543	.003*WT + .013*HT +	1.85	.13
59C	HAND CIRCUMFERENCE	.568	.007*WT + .030*HT +	4.41	.28
60C	HAND LENGTH	.638	.002*WT + .081*HT +	1.41	.27
61C	INSTEP LENGTH	.661	.005*WT + .076*HT +	1.49	.29
62C	FOOT LENGTH	.715	.005*WT + .112*HT +	1.73	.34
63C	HEEL-ANKLE CIRC	.718	.013*WT + .085*HT +	4.95	.40
64C	FOOT BREADTH	.523	.004*WT + .017*HT +	1.87	.17
65C	HEEL BREADTH	.501	.004*WT + .003*HT +	1.68	.14
66C	FOOT CIRCUMFERENCE	.615	.011*WT + .039*HT +	4.95	.35
67C	INSTEP CIRC	.616	.013*WT + .039*HT +	5.02	.39
68C	ANKLE HEIGHT	.518	-.002*WT + .090*HT -	1.24	.34
69C	SPHYRION HEIGHT	.403	0.000*WT + .032*HT +	.49	.20

*WEIGHT IN POUNDS; STATURE IN INCHES

TABLE 12A

MULTIPLE REGRESSION EQUATIONS FOR PREDICTING WOMEN'S
ANTHROPOMETRIC DIMENSIONS FROM BODY WEIGHT AND STATURE

TRADITIONAL SERIES: METRIC UNITS*

		R					SE EST
1T	CERVICALE HEIGHT	.979	.024*WT +	.898*HT -	7.02	1.23
2T	SUPRASTERNALE HT	.985	.023*WT +	.848*HT -	6.49	.96
3T	SUBSTERNALE HEIGHT	.933	.031*WT +	.697*HT -	1.14	1.79
4T	ELBOW HEIGHT	.935	.052*WT +	.657*HT -	7.24	1.71
5T	KNUCKLE HEIGHT	.823	.020*WT +	.493*HT -	10.28	2.25
6T	TROCHANTERIC HT	.847	.027*WT +	.562*HT -	6.98	2.35
7T	GLUTEAL FURROW HT	.836	-.021*WT +	.544*HT -	13.00	2.23
8T	TIBIALE HEIGHT	.843	-.008*WT +	.331*HT -	9.25	1.33
9T	ACROMION-RADIALE	.803	.022*WT +	.190*HT -	1.32	.99
10T	RADIALE-STYLION	.694	.015*WT +	.146*HT -	.23	1.06
11T	ELBOW-CENTER GRIP	.693	.017*WT +	.176*HT +	2.66	1.27
12T	ELBOW REST HEIGHT	.308	-.001*WT +	.132*HT -	.66	2.60
13T	THIGH CLEARANCE HT	.867	.137*WT -	.062*HT +	17.37	.77
14T	ABDOM-EXTEN DEPTH	.806	.270*WT -	.122*HT +	25.74	1.54
15T	BISPINOUS BREADTH	.584	.131*WT +	.029*HT +	10.80	1.79
16T	BIACROMIAL BREADTH	.536	.080*WT +	.036*HT +	25.12	1.36
17T	ABDOM-EXTEN BRDTH	.731	.227*WT +	.039*HT +	10.21	2.04
18T	THIGH-THIGH BRDTH	.846	.331*WT -	.063*HT +	28.90	1.74
19T	WAIST C, OMPHALION	.858	.850*WT -	.293*HT +	73.49	4.06
20T	HIP CIRC, SITTING	.919	.721*WT -	.053*HT +	64.02	2.69
21T	VERT TRUNK CIRC S	.806	.413*WT +	.457*HT +	47.75	4.29
22T	AXILLARY ARM CIRC	.882	.291*WT -	.113*HT +	28.76	1.22
23T	BICEPS CIRC RELAX	.908	.300*WT -	.135*HT +	30.06	1.08
24T	FOREARM CIRC RELAX	.843	.153*WT -	.032*HT +	19.42	.80
25T	SUBSCAPULAR SKNFLD	.721	.058*WT -	.035*HT +	3.65	.42
26T	TRICEPS SKINFOLD	.724	.046*WT -	.017*HT +	1.78	.34
27T	BICEPS SKINFOLD	.704	.035*WT -	.014*HT +	1.05	.27
28T	SUPRAILIAC SKNFLD	.748	.069*WT -	.032*HT +	2.79	.47

*WEIGHT IN KILOGRAMS; STATURE IN CENTIMETERS

TABLE 12B

MULTIPLE REGRESSION EQUATIONS FOR PREDICTING WOMEN'S ANTHROPOMETRIC DIMENSIONS FROM BODY WEIGHT AND STATURE

TRADITIONAL SERIES: ENGLISH UNITS*

		R			SE EST
1T	CERVICALE HEIGHT	.979	.004*WT + .898*HT -	2.72	.48
2T	SUPRASTERNALE HT	.985	.004*WT + .848*HT -	2.54	.38
3T	SUBSTERNALE HEIGHT	.933	.006*WT + .697*HT -	.51	.71
4T	ELBOW HEIGHT	.935	.009*WT + .657*HT -	2.81	.67
5T	KNUCKLE HEIGHT	.823	.004*WT + .493*HT -	4.10	.89
6T	TROCHANTERIC HT	.847	.005*WT + .562*HT -	2.77	.93
7T	GLUTEAL FURROW HT	.836	-.003*WT + .544*HT -	5.21	.88
8T	TIBIALE HEIGHT	.843	-.001*WT + .331*HT -	3.70	.52
9T	ACROMION-RADIALE	.803	.004*WT + .190*HT -	.53	.39
10T	RADIALE-STYLION	.694	.003*WT + .146*HT -	.13	.42
11T	ELBOW-CENTER GRIP	.693	.003*WT + .176*HT +	1.05	.50
12T	ELBOW REST HEIGHT	.308	0.000*WT + .132*HT -	.28	1.02
13T	THIGH CLEARANCE HT	.807	.024*WT - .062*HT +	6.90	.30
14T	ABDOM-EXTEN DEPTH	.806	.048*WT - .122*HT +	10.16	.60
15T	BISPINOUS BREADTH	.584	.023*WT + .029*HT +	4.30	.70
16T	BIACROMIAL BREADTH	.536	.014*WT + .036*HT +	9.93	.54
17T	ABDOM-EXTEN BRDTH	.731	.041*WT + .039*HT +	3.96	.80
18T	THIGH-THIGH BRDTH	.846	.059*WT - .063*HT +	11.39	.69
19T	WAIST C, OMPHALION	.858	.152*WT - .293*HT +	28.91	1.60
20T	HIP CIRC, SITTING	.919	.129*WT - .053*HT +	25.17	1.06
21T	VERT TRUNK CIRC S	.806	.074*WT + .457*HT +	18.77	1.69
22T	AXILLARY ARM CIRC	.882	.052*WT - .113*HT +	11.32	.48
23T	BICEPS CIRC RELAX	.908	.054*WT - .135*HT +	11.78	.42
24T	FOREARM CIRC RELAX	.843	.027*WT - .032*HT +	7.69	.32
25T	SUBSCAPULAR SKNFLD	.721	.010*WT - .035*HT +	1.48	.17
26T	TRICEPS SKINFOLD	.724	.008*WT - .017*HT +	.73	.14
27T	BICEPS SKINFOLD	.704	.006*WT - .014*HT +	.44	.11
28T	SUPRAILIAC SKNFLD	.748	.012*WT - .032*HT +	1.14	.18

*WEIGHT IN POUNDS; STATURE IN INCHES

TABLE 13A

MULTIPLE REGRESSION EQUATIONS FOR PREDICTING WOMEN'S ANTHROPOMETRIC DIMENSIONS FROM BODY WEIGHT AND STATURE

WORKSPACE SERIES: METRIC UNITS*

		R				SE EST
1W	OVERHEAD REACH HT	.924	-.003*WT	+1.254*HT -	4.58	3.47
2W	FUNCTIONAL REACH	.582	.078*WT	+ .334*HT +	12.24	3.69
3W	FUNCT REACH EXTEND	.582	.064*WT	+ .462*HT +	4.20	4.76
4W	OVERHEAD REACH SIT	.756	.101*WT	+ .673*HT +	13.57	4.33
5W	FUNCTIONAL LEG LTH	.806	-.001*WT	+ .699*HT -	4.71	3.43
6W	WEIGHT	.997	1.004*WT	+ .024*HT -	1.80	.60
7W	STATURE	.994	-.001*WT	+ .992*HT +	5.89	.75
8W	OVERHEAD REACH BRD	.619	.137*WT	+ .026*HT +	22.42	1.52
9W	BENT TORSO HEIGHT	.510	-.010*WT	+ .605*HT +	28.22	6.75
10W	BENT TORSO BREADTH	.646	.148*WT	+ .035*HT +	25.65	1.55
11W	KNEELING HEIGHT	.959	0.000*WT	+ .684*HT +	10.80	1.35
12W	KNEELING LEG LNGTH	.812	.044*WT	+ .389*HT -	1.04	2.03
13W	BENT KNEE HT SUPIN	.693	.056*WT	+ .220*HT +	6.40	1.84
14W	HORI LG KNEES BENT	.828	-.022*WT	+ .905*HT +	5.04	4.02

*WEIGHT IN KILOGRAMS; STATURE IN CENTIMETERS

TABLE 13B

MULTIPLE REGRESSION EQUATIONS FOR PREDICTING WOMEN'S ANTHROPOMETRIC DIMENSIONS FROM BODY WEIGHT AND STATURE

WORKSPACE SERIES: ENGLISH UNITS*

		R					SE EST
1W	OVERHEAD REACH HT	.924	0.000*WT	+1.254*HT	-	1.87	1.37
2W	FUNCTIONAL REACH	.582	.014*WT	+ .334*HT	+	4.81	1.45
3W	FUNCT REACH EXTEND	.582	.011*WT	+ .462*HT	+	1.71	1.88
4W	OVERHEAD REACH SIT	.756	.018*WT	+ .673*HT	+	5.35	1.70
5W	FUNCTIONAL LEG LTH	.806	0.000*WT	+ .699*HT	-	1.88	1.35
6W	WEIGHT	.997	.456*WT	+ .061*HT	-	1.88	.60
7W	STATURE	.994	0.000*WT	+ .992*HT	+	2.30	.29
8W	OVERHEAD REACH BRD	.619	.025*WT	+ .026*HT	+	8.76	.60
9W	BENT TORSO HEIGHT	.510	-.001*WT	+ .605*HT	+	11.01	2.66
10W	BENT TORSO BREADTH	.646	.026*WT	+ .035*HT	+	10.15	.61
11W	KNEELING HEIGHT	.959	0.000*WT	+ .684*HT	+	4.25	.53
12W	KNEELING LEG LNGTH	.812	.008*WT	+ .389*HT	-	.43	.80
13W	BENT KNEE HT SUPIN	.693	.010*WT	+ .220*HT	+	2.52	.72
14W	HORI LG KNEES BENT	.828	-.003*WT	+ .905*HT	+	1.86	1.58

*WEIGHT IN POUNDS; STATURE IN INCHES

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